

US Army Corps
of Engineers
Baltimore District

CONSTRUCTION SPECIFICATIONS

K-9 KENNEL

FORT BELVOIR VIRGINIA

REQUEST FOR PROPOSAL **DACA31-03-M-0002**

CONTRACT NO.

DATE **FEB. 05, 2003**

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NOT USED

END

SECTION 01000

ADMINISTRATIVE REQUIREMENTS
04/02

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittal

Title Evidence.

Proof of purchase for equipment and/or materials.

Invoice Copies.

Proof of rental equipment costs.

Payment Evidence.

Proof of full payment.

Photographs.

Personnel Data; G AR

Personnel List; G AR

Working Hours; G AR

Insurance Evidence; G AR

Proof of insurance.

SD-03 Product Data

Cost or Pricing Data

Proof of actual equipment costs.

Equipment Data.

An itemized list of serial/model numbers and equipment installed by the Contractor under this contract..

SD-05 Design Data

Progress Schedule; G AR.

A schedule that shows the manner in which the Contractor intends to prosecute the work.

Modified Chart; G AR.

Prepared when changes are authorized that result in contract time extensions.

SD-06 Instructions

O and M Data.

A list of proposed maintenance and instruction manuals that is mainly used for but not limited to customized equipment.

SD-10 Operation and Maintenance Data

Commissioning Activity for HVAC.

1.2 PROGRESS SCHEDULING AND REPORTING (AUG. 1999)

The Contractor, shall within five days or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. Contractor prepared form shall contain the same information as shown on the attached NADB Form 1153 ("Physical Construction Progress Chart" (CENAB-CO-E)

1.3 PAYMENTS TO CONTRACTORS: (NOV 1976)

For payment purposes only, an allowance will be made by the Contracting Officer of 100 percent of the invoiced cost of materials or equipment delivered to the site but not incorporated into the construction, pursuant to the Contract Clause entitled "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS". The Contracting Officer may also, at his discretion, take into consideration the cost of materials or equipment stored at locations other than the jobsite, when making progress payments under the contract. In order to be eligible for payment, the Contractor must provide satisfactory evidence that he has acquired title to such material or equipment, and that it will be utilized on the work covered by this contract. Further, all items must be properly stored and protected. Earnings will be computed using 100% of invoiced value. (CENAB-CO-E)

1.4 IDENTIFICATION OF EMPLOYEES: (OCT 1983)

Each employee assigned to this project by the Contractor and subcontractors shall be required to display at all times, while on the project site, an approved form of identification provided by the Contractor, as an

authorized employee of the Contractor/subcontractor. In addition, on those projects where identification is prescribed and furnished by the Government, it shall be displayed as required and it shall immediately be returned to the Contracting Officer for cancellation upon release of the assigned employee and or completion of project. (CENAB)

1.5 PURCHASE ORDER: (SEP 1975)

One readable copy of all purchase orders for material and equipment, showing firm names and addresses, and all shipping bills, or memoranda of shipment received regarding such material and equipment, shall be furnished the appointed Contracting Officer's Representative as soon as issued. Such orders, shipping bills or memoranda shall be so worded or marked that all material and each item, piece or member of equipment can be definitely identified on the drawings. Where a priority rating is assigned to a contract, this rating, the required delivery date, and the scheduled shipping date shall also be shown on the purchase order. At the option of the Contractor, the copy of the purchase order may or may not indicate the purchase price. (CENAB-CO-E)

1.6 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (EFARS 52.0231.5000 (OCT 1995))

(a) This clause does not apply to terminations. See 52.249-5000, Basis for settlement of proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable conditions owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual costs data for each piece of equipment or groups of similar serial and services for which the government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs can not be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP1110-1-8 Construction Equipment Ownership and Operating Expenses Schedule, Region East. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d) (ii) and Far 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established proactive of leasing the same or similar equipment to unaffiliated leasees.

(d) When actual equipment costs are proposed and the total amount of the

pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet. CENAB-CT/SEP 95 (EFARS 52.231-5000)

1.7 REAL PROPERTY EQUIPMENT DATA: (APR 1975)

At or before the time of completion of the contract, the Contractor shall submit to the Contracting Officer a complete itemized list, including serial and model number where applicable, showing the unit retail value of each Contractor furnished item of mechanical, electrical and plumbing equipment installed by the Contractor under this contract. For each of the items which is specified herein to be guaranteed for a specified period from the date of acceptance thereof, either for beneficial use or final acceptance, whichever is earlier, against defective materials, design, and workmanship, the following information shall be given: the name, address and telephone number of the Subcontractor, Equipment Supplier, or Manufacturer originating the guaranteed item. The list shall be accompanied by a copy of the specific guarantee document for each item which is specified herein to be guaranteed if one had been furnished to the Contractor by the Equipment Supplier or Manufacturer. The Contractor's guarantee to the Government of these items will not be limited by the terms of any manufacturer's guarantee to the Contractor. Baltimore District NADB Form 1019 may be utilized for the itemized listing and will be made available to the Contractor upon request. (CENAB-CO-E)

1.8 O and M DATA: (JUL 1979)

The requirements for furnishing operating and maintenance data and field instruction are specified elsewhere in the specifications. The Contractor shall submit to the Contracting Officer, at a time prior to the 50% project completion time, a list of proposed maintenance and instruction manuals to be furnished the Government and the scheduled dates of all required field instructions to be provided by Contractor furnished personnel or manufacturer's representatives. All maintenance and instruction manuals must be furnished to the Contracting Officer at least 2 weeks prior to the scheduled dates of any required Contractor furnished field instructions or at least one month prior to project completion if no Contractor furnished field instructions are required. (CENAB)

1.9 NEGOTIATED MODIFICATIONS: (OCT 84)

Whenever profit is negotiated as an element of price for any modification to this contract with either prime or subcontractor, a reasonable profit shall be negotiated or determined by using the OCE Weighted Guidelines method outlined in EFARS 15.902. (Sugg. NAB 84-232)

1.10 PHOTOGRAPHS

PHOTOGRAPHIC COVERAGE: (SEP 85) The Contractor shall provide photographic coverage under the contract. These services shall be for ten commercial grade color photographs every three months from the beginning of the

contract until acceptance of the completed work. These photographs shall be in 8" x 10" (203.4 mm x 254 mm) size and shall be taken at intervals and at the place designated by the Contracting Officer. Negatives from all of the above photographs shall be given to and become the property of the Government. (CENAB-CO)

1.11 PARTNERING: (NOV 92)

In order to most effectively accomplish this contract, the Government is willing to form a cohesive partnership with the Contractor and its subcontractors. This partnership would strive to draw on the strengths of each organization in an effort to achieve a quality project done right the first time, within budget and on schedule. This partnership would be bilateral in make-up and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. (CENAB-EN-DT)

1.12 EXCAVATION PERMIT

A written excavation permit shall be obtained from the Office, Department of Public Works (DPW), Building 1442, Fort Belvoir, Virginia, prior to the performance of any excavation work. The permit is issued without cost to the Contractor. A copy of DPW Excavation Permit, Form 75, is attached to the end of this section. The Contractor is advised to handcarry all permit-related paperwork to each required office as this method obtains a permit in 7 to 10 days. Allowing paperwork to be channelled by any other method may result in delays which may impact construction completion time. Should the Contractor fail to obtain such clearance and subsequently, through his operations, cause any damage to utilities, lines or structures including, but not limited to underground telephone cable, electric cable, water lines and sewer lines, repairs necessary to restore the lines to their previous condition shall be made at the Contractor's expense.

1.13 HOT-WORK PERMIT

A hot-work permit, DA Form 5383-R (copy attached to the end of this section), must be submitted to the Fort Belvoir Fire Department before using heat-producing equipment. Additional instructions are found on attached "Fort Belvoir Fire Department Pre-Construction Conference Report" form, which also includes a requirement to attend a briefing conference and provide a signature acknowledging receipt of briefing.

1.14 PASSES

All visitors, including contractor personnel, wishing to gain access to Fort Belvoir must obtain an MP checkpoint pass from the Visitor Center. Mondays thru Fridays the entrance to the Visitor Center is located at Tulley Gate (Main), Route 1 and Pohic roads. On Weekends / Holidays entrance is thru Pence Gate, Route 1 and Belvoir Roads. Without this pass, access will be denied.

1.15 VEHICLE REGISTRATION AND OPERATION

1.15.1 Insurance Evidence

Privately owned vehicles to be operated on the Fort Belvoir Military Reservation must be registered at the Fort Belvoir Visitor Center prior to entering the installation. Evidence of compliance with the provisions of paragraph: "REQUIRED INSURANCE" of the CONTRACT CLAUSES pertaining to automobile liability coverage must be presented upon application for vehicle registration.

1.15.2 Safety Inspection

Privately owned vehicles operating at Fort Belvoir, Virginia are required to display a mechanical safety inspection sticker. If the state in which the vehicle is licensed or registered does not require a mechanical safety inspection, the requirements of the State of Virginia in this respect will govern.

1.15.3 Regulation No. 190-2

All vehicles operating on Fort Belvoir, Virginia, are subject to Regulation No. 190-2, copies of which are available in the Office of the Provost Marshal, Fort Belvoir, Virginia.

1.15.4 Parking

Vehicles will be parked in designated parking area only.

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENTS:

NADB Form 1153 ("Physical Construction Progress Chart")
EXCAVATION PERMIT
FORT BELVOIR FIRE DEPARTMENT PRE-CONSTRUCTION CONFERENCE REPORT
Hot-Work Permit Form DA 5383-R

-- End of Section --

**FORT BELVOIR FIRE DEPARTMENT
PRE-CONSTRUCTION CONFERENCE REPORT**

DATE _____
FIRE INSPECTOR _____
GOVERNMENT POC _____
PHONE NUMBER _____
PROJECT LOCATION _____
PROJECT TITLE _____
CONTRACT NUMBER _____
PRIMARY CONTRACTOR _____
ADDRESS _____
OFFICE PHONE NUMBER _____
24-HOUR PHONE NUMBER _____
PROJECTED START DATE _____

FIRE DEPARTMENT EMERGENCY
781-1800

FIRE DEPARTMENT BUSINESS
806-6911

FIRE INSPECTOR OFFICE
805-2091

THE CONTRACTOR WAS BRIEFED AND ADVISED OF THE FOLLOWING ITEMS:

1. Prior to using any heat producing equipment a Hot-Work Permit (DA 5383-R) must be obtained from a fire department representative.
2. All tanks for oxygen, acetylene, LPG, etc. must be properly secured against tipping over. Tanks must be equipped with working gauges and hoses in good condition. All tanks must have shutoff valves and when not in use safety caps must be in place.
3. All flammable/combustible liquids must be stored in a metal cabinet marked "FLAMMABLE" or removed from the jobsite daily.
4. The Contractor shall provide a sufficient number of approved and serviceable fire extinguishers of not less than ten (10) pound capacity dry chemical type with ABC rating, the number to be determined by criteria developed by the Fire Prevention Office. All trailers on the jobsite shall be equipped with at least one (1) such extinguisher.
5. All trash shall be removed from the jobsite at the end of each working day.
6. There shall be at least one person on the jobsite who can speak and understand English.
7. The Contractor shall instruct all employees in the correct and required procedures to be taken in the event of a fire on the jobsite (notification, evacuation, etc.)
8. ALL FIRES REGARDLESS OF SIZE MUST BE REPORTED TO THE FIRE DEPARTMENT IMMEDIATELY, EVEN IF EXTINGUISHED.
9. Flammable/combustible liquids used on the jobsite shall be stored in approved metal safety cans in good condition.
10. Fire hydrants, fire lanes, sprinkler/standpipe connections, and fire alarm boxes and control panels shall not be blocked so as to prevent immediate access. Fire hydrants shall not be used by the Contractor without prior authorization by the Fire Department and other applicable departments. The Fire Department shall be notified whenever any roadway is blocked or any fire hydrant or water main is shut down by the Contractor.
11. There shall be no smoking in any work area at any time.

BY THE SIGNATURES BELOW THE CONTRACTOR ACKNOWLEDGES RECEIPT OF THIS BRIEFING AND AWARENESS OF APPLICABLE REGULATIONS AND PRECAUTIONS

CONTRACTOR REPRESENTATIVE

FIRE DEPARTMENT REPRESENTATIVE

Distribution: Original to Contractor, Copy to Fire Prevention Office

Expiration Date
of Permit: _____

Permit #: _____

**MARKINGS MUST BE MAINTAINED
U.S. ARMY GARRISON, FORT BELVOIR
DIS EXCAVATION PERMIT**

A. REQUESTER P.O.C.: Tele #: Date Clearance Req'd:	B. EXCAVATION RISK: CLASS I (SEVERE) CLASS II (MINIMAL)	DIS _____ _____	DOIM _____ _____	EXPIRATION 15 DAYS 30 DAYS
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C. LOCATION OF AREA TO BE EXCAVATED:

(NOTE: A to-scale drawing of the excavation site must be submitted along with this form.
Excavation route must be staked, painted or flagged by the requester every 30 feet.)

D. TYPE OF WORK TO BE PERFORMED:

E. MISC INFORMATION:

- (1) This excavation request is used for any work on post that may disrupt underground utilities, communications, right of ways or any routine activities.
- (2) Processing of this permit will take approximately 10-14 days. Requester must have an approved excavation permit prior to commencement of work, and permit must be kept on-site.
- (3) If utilities or communications have been located in the area to be excavated, hand digging will be used within 10 foot radius until the exact location of all lines have been determined. If markings are maintained by the requester, an extension may be given to the expiration date if needed.
- (4) The Government reserves the right to have on-site personnel present during any excavation and will specify on this permit under precautionary measures if needed.
- (5) The requester shall protect from damage all existing improvements, utilities, communications and vegetation at or near the work site. The requester shall be liable for all damages to persons or property that occur as a result of the requester's fault or negligence.
- (6) Any questions regarding this excavation permit may be directed to the Contract Management Division at 806-3765.

I HAVE FULLY READ AND UNDERSTAND THE ABOVE NOTE

_____ Signature of Contractor / POC	_____ Date
--	---------------

F. REQUESTER ACTION #8 (See item G on back of form for directions)

	<u>Risk Assessments if Damage Occurs</u> <u>Facilities/Areas Effective</u>	<u>Initial/Date</u>
(1) Contract Mgmt.		
(2) DynCorp Work Order # _____		
Sanitation _____		
Electrical _____		
Mechanical _____		
(3) Fire Prevention _____		
(4) Environmental _____		
(5) Fac. Planning _____		
(6) Provost Marshal _____		
(7) Dir.Info Mgmt. _____		
(8) Miss Utility # _____		
Clearance Date _____		

PRECAUTIONARY MEASURES: _____

G. DIRECTIONS FOR REQUESTER ACTION:

- | | |
|----------------------------------|--|
| (1) Contract Mgmt.
806-3765 | 9430 Jackson Loop, ATTN: Michael G. Smith, Rm 215. Initiate Excavation Permit at least 15 days prior to commencement of work. |
| (2) DynCorp
806-4762 | 9460 Jackson Loop, Attn: Dee Howard, Contract Management Division will forward to DynCorp and request return after permit clearance. |
| (3) Fire Prevention
805-2091 | 9701 Gunston Road, Bldg. 191 Fire Inspector's Office for signature on permit for any work that may result in a road closure. |
| (4) Environmental
806-4007 | 9430 Jackson Loop, Rm 200. Environmental Office for signature on permit. Leave copy of drawings. |
| (5) Fac. Planning
806-3352 | 9430 Jackson Loop, Rm 212. Fac Planning Office for signature on permit. |
| (6) Provost Marshal
806-3104 | 9650 King Road, Bldg. 1131 Operations Office for signature on permit for any work that may result in a road closure. |
| (7) Dir. Info. Mgmt.
704-2517 | 10105 Gridley Road, Bldg. 312, Rm. 200 ATTN: Brenda Rulapaugh |
| (8) Miss Utility
800-257-7777 | Call Miss Utility at least 48 hrs in advance of excavation. Provide all information Items A & C on the front of this form. A Control number will be provided by Miss Utility. Must be updated every 15 days. |
| (9) Contract Mgmt.
806-3765 | 9430 Jackson Loop, ATTN: Mike Smith, Rm 215. Contractor/POC must obtain approval of excavation permit prior to commencement of work. |
-

H.

Approved _____

Name and Title of Authorizing Official

Disapproved _____

Michael G. Smith

Date

Contract Management Division

HOT-WORK PERMIT

For use of this form, see AR 420-90; the proponent agency is ACSIM

1. LOCATION	2. DATE	3. PERMIT NO.
4. TYPE OF WORK	5. START TIME	6. FINISH TIME
7.a. NAME OF PERSON RESPONSIBLE FOR HOT-WORK AT JOB SITE <i>(Contractor/Government Employee)</i>	7.b. SIGNATURE	

PRECAUTIONS BEFORE OPERATIONS

CHECKLIST	CHECK ONE	
	YES	NO
8. Did Fire Department Inspector inspect site?		
9. Are there procedures for Fire Department emergency notification? <i>(Emergency No.)</i>		
10. Are combustibles in area noted?		
11. Should combustibles be covered? <i>(If yes, note in remarks)</i>		
12. Are proper extinguishers on hand?		
13. Is wet-down necessary? <i>(If yes, note in remarks)</i>		
14. Is smoking permissible at work sites?		
15. Is continuous fire watch required?		
16. Is Fire Department standby required?		
17. Are other precautions required? <i>(If yes, note in remarks)</i>		
18.a. FIRE DEPARTMENT INSPECTOR'S SIGNATURE	18.b. DATE	

PRECAUTIONS AFTER OPERATIONS

CHECKLIST	CHECK ONE	
	YES	NO
19.a. Was Fire Department notified after hot-work operation was completed?		
19.b. Time:		
20.a. Did Fire Department inspector inspect work site?		
20.b. Time:		
21. Are after work conditions safe? <i>(If no, note in remarks)</i>		
22. Are heat producing devices safe if left at work site?		
23.a. FIRE DEPARTMENT INSPECTOR'S SIGNATURE	23.b. DATE	
24. REMARKS		

NOTE: PERMIT VALID ON DAY OF OPERATION AT ONE LOCATION ONLY

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

1.1 Introduction and General Design Requirements

1.1.1 The project objective is to provide a new 3,616 SF single story, military K-9 Kennel Facility for the Provost Marshall's Office at Fort Belvoir, Virginia. The proposed site is located on the west side of Pratt Road adjacent to the existing K-9 Kennel Facility and across from the existing Electronic Maintenance Shop located at 16th Street and Pratt Road. The K-9 Kennel Facility will consist of the Kennel Support Building containing multipurpose room (office, training, storage, etc.), veterinary room, drug room, tack room, communications room, food storage room, handler office/training room, kitchen/food preparation room, male and female latrines, shower rooms, cleaning supply room, storage room, and isolation room. The Kennel Area shall contain dog runs, a storage room, and exterior break areas. Associated supporting facilities will include parking areas, asphalt pavement, sidewalks, domestic water, sewer, gas, electrical service, fire protection and alarm system, access road, storm water management, information systems, furniture/equipment, fencing, and landscaping. Heating shall be provided by a natural gas self contained system. Air conditioning shall be provided by a self-contained system. Separate heating and air conditioning systems shall be provided for the kennel support and kennel areas.

1.1.2 Fort Belvoir is required to train and provide shelter for canine dogs in support of narcotic and explosive missions on the installation, within the National Capitol Region, and to provide support of missions throughout the United States. The K-9 Kennel Unit is an organization eventually consisting of 14 personnel and 13 canines. The existing K-9 Kennel Facility (Building 1104) is a 4,720 square foot facility constructed in 1948. The present facility is outdated and archaic. By having a modern K-9 Facility, with all the proper ancillary features, the unit can ensure that the canines are trained to specific mission standards, and the unit is ready to fulfill any mission at any time easier, faster, and for less expense.

1.1.2.1 The K-9 Facility operates 24 hours, 7 days a week. Visitors will not be received at this facility on a normal basis.

1.1.2.2 This project also includes demolition of the existing 4,720 SF K-9 Kennel Facility located on site. The existing building demolition shall include the concrete slab, concrete foundations, concrete masonry unit walls, gypsum board walls, wood roof trusses, wood sheathing, roof shingles, underground fuel oil storage tank, fencing both wood and metal, and all utilities associated with the facility. Extent of site and utility line demolition shall be as shown on Drawing C1. Existing building plan is attached as Drawing D1. Both drawings are included as part of this RFP at the end of this chapter.

1.1.2.3 The new facility shall be constructed while keeping the existing facility operational both for the kennel building and exterior training areas. The exterior training area shall be modified, during construction, to accommodate the new facility location. Modification of the exterior training area will consist of the relocation/new installation of fencing. Canine training obstacle course equipment will be relocated by the government. Only after the new facility has been constructed and is operational shall demolition of the existing structure proceed. After demolition of the existing

facility is completed, new fencing shall be provided around the entire training area.

1.2 Authorization

1.2.1 Department of Defence, DD Form 1391 for the subject project dated 25 September 2001, revised 25 July 2002. The Project Number is 57530 and the Facility Category Code is 530-45.

1.3 General Design Requirements

1.3.1 The project shall be designed and constructed in accordance with:

DA PAM 190-12 dated 30 September 93, Department of the Army Pamphlet 190-12, Military Working Dog Program, except as modified in this RFP, with criteria contained herein and using industry standard materials and efficient practices. A copy of DA PAM 190-12 is provided at the end of this chapter as Attachment No. 1.

AR's - http://www.army.mil/usapa/epubs/190_Series_Collection_1.html

AR 190-12 dated 30 September 93, Army Regulation, Military Working Dogs.

AR 190-51 dated 30 September 93, Army Regulation, Security OF Unclassified Army Property (Sensitive And Nonsensitive).

Department of Defense Antiterrorism/Force Protection Construction Standards with Army Supplemental Guidance) Interim Standards, 16 Dec. 99.

The building design and materials selected shall be energy efficient, durable, and easily maintained. The Contractor shall be responsible for the professional quality, technical accuracy and coordination of all designs, drawings, specifications and other documents or publications upon which construction is based.

1.3.2 The design and construction of the K-9 Kennel Facility shall be compatible with the surrounding environment, and shall conform to the Fort Belvoir Installation Design Guide.

1.3.3 All work, associated amenities, and site improvements required by the Contract shall be constructed within the project site.

1.3.4 The construction contractor shall obtain all air quality permits.

1.3.5 The design of architectural, interior, structural, mechanical, plumbing, fire protection, electrical, civil, landscape architectural and other engineering features of the work shall be accomplished, reviewed and approved by engineers, architects, and interior designers licensed to practice in their respective profession.

1.3.6 The Contractor shall check the design requirements for accuracy and applicability. The Contractor is responsible and liable for the complete design. The Contractor shall not assume the provided design requirements and design solicitation will alleviate him from performing any design.

1.3.7 The RFP documents provide site survey drawings in English units. Also, included is a site constraint drawing of the K-9 Kennel Facility.

1.3.8 Design and construction of this facility shall comply with the minimum requirements of the Interim Anti-Terrorism/Force Protection Construction Standards (December 16, 1999) as identified in various technical requirements of this RFP. The proposed design shall provide the minimum level of protection required for personal, personnel, classified, and building security.

1.3.9 Sustainable Design:

The contractor shall comply with and provide for the requirements of sustainable design with a minimum design target of "Bronze Spirit".

Department of the Army
Pamphlet 190-12

Military Police

Military Working Dog Program

Headquarters
Department of the Army
Washington, DC
30 September 1993

Unclassified

SUMMARY of CHANGE

DA PAM 190-12
Military Working Dog Program

This revision--

- o Updates all points of contact, organizations, and mailing addresses (table 4-1).
- o Includes waiver or reception paragraph (para 1- 4).
- o Includes a description of DD Form 1834 (Military Working Dog Service Record) (para 3-33).
- o Adds inventory procedures for explosive training aids (para 5-4b).
- o Authorizes exact duplication of any DA or DD forms generated Military Police Management Information System may be used in place of the Office printed version of the form.

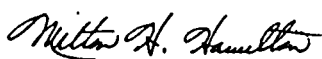
Military Police

Military Working Dog Program

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:



MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army

History. This UPDATE printing publishes a revision of this publication. Because the publication has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet explains policies,

procedures, and responsibilities of the U.S. Army Military Working Dog Program.

Applicability. This pamphlet applies to the Active Army, the Army National Guard, and the U.S. Army Reserve. It applies to all personnel who are involved in the care, training, and employment of military working dogs. This regulation applies during partial and full mobilization.

Proponent and exception authority. The proponent of this regulation is the Deputy Chief of Staff for Operations and Plans. The Deputy Chief of Staff for Operations and Plans has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The Deputy Chief of Staff for Operations and Plans may delegate this authority in writing to a division chief within the proponent agency in the grade of colonel or the civilian equivalent.

Interim changes. Interim changes to this

pamphlet are not official unless they are authenticated by The Administrative Assistant to the Secretary of the Army. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested Improvements. Users are invited to send comments and suggested improvements through established command channels on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the HQDA (DAMO-ODL), 400 Army Pentagon, Washington, DC 20310-0400.

Distribution. Distribution of this publication is made in accordance with the requirements on DA Form 12-09E, block 2568, intended for command levels A, B, C, D, and E for Active Army, Army National Guard, the U.S. Army Reserve.

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Chapter 1 The Military Working Dog Program

Section I Purpose and References

1-1. Purpose

This pamphlet explains policies, procedures, and responsibilities for the direction, management, and control of the U.S. Army Military Working Dog (MWD) program. This pamphlet complements, and must be used with, AR 190-12 which prescribes Army policy and requirements. Other primary sources of information include AFR 400-8/AR 700-81/OPNAVINST 10570.1/MCO 20570.1 (hereafter referred to as AR 700-81). This pamphlet provides extensive guidance, standards, and information regarding training and utilization of MWD teams, controlled substances and explosives training aids, veterinary care, kennel facilities, dog handling equipment, and inspections. It provides the commander, the kennelmaster, and the handler with the information needed to maintain a proficient and operationally effective unit MWD program.

1-2. References

Required and related publications and prescribed and referenced forms are listed in appendix A.

1-3. Explanation of abbreviations and terms

Abbreviations and special terms used in this pamphlet are explained in the consolidated glossary.

1-4. Waivers

When provisions of this regulation cannot be met, major Army commands (MACOMs) may request a waiver, as appropriate. Requests for waivers will be forwarded in writing to HQDA(DAMO-ODL-S), 400 Army Pentagon, Washington, DC 20310-0400. Waivers normally will be granted for a period of one year and may be extended only after a review of the circumstances necessitating the extension. Requesting activity will maintain a record of approved waiver.

Section II Program Concept

1-5. Historical basis

Dogs have been used by people to help protect themselves and their property since ancient times. Trained dogs have been used by most of the world's military forces since the first military units were organized. From these ancient beginnings, the MWD's training has been continuously refined to produce a highly sophisticated and versatile extension of the soldier's own senses. Even the most complex machines remain unable to duplicate the operational effectiveness of a properly trained MWD. The MWD's unique capabilities are used by the military police (MP) to:

- a. Secure installation and property.
- b. Help enforce military laws and regulations.
- c. Increase the effectiveness of the combat support provided by the MPs.

1-6. The role of the military working dog

Like other highly specialized items of equipment, MWDs complement and enhance the capabilities of the MP. When used by existing MP organizations, MWD teams enable the MP to perform their mission more effectively and, in many cases, with significant savings of manpower, time, and money. MWD teams also provide a strong psychological deterrent to potential offenders.

a. The patrol dog is tolerant of people and can be used in almost any area of an installation including airfields, housing, shopping, and industrial areas. Patrol dog teams are used with law enforcement and security patrols to:

- (1) Enhance the rear area protection capability.
- (2) Search, scout, and track.
- (3) Observe from listening or observation posts.

b. Detection dog teams are trained to detect controlled substances or explosives used to construct explosive devices that threaten, damage, or destroy personnel or property.

c. The MWD team's specialized capabilities make it one of the most effective tools available to the commander for combat support, security, and law enforcement. As the only live equipment employed Army-wide, the dog's continuing proficiency depends on realistic daily training and care. Skills which are not practiced or used can be lost. The assignment of dogs and handlers together as active teams is critical to their continuing effectiveness.

1-7. Quality assurance

Every level of command within the Army has specific responsibilities for making sure that the MWD program is properly established and efficiently managed. This includes ensuring that operational units are provided with trained dogs and handlers to form teams, and the necessary equipment and facilities to maintain effective local MWD programs. The Air Force is the executive manager of the MWD program for the Department of Defense (DOD), and is responsible for the procurement, initial training, and initial distribution of MWDs used by the military services and several Federal agencies. Specific responsibilities are per AR 190-12.

Section III Understanding Military Working Dogs

1-8. Advantages of dogs

A dog can be trained to respond consistently to certain sensory stimuli (odors, scents, and so forth) to alert the handler. If the dog's reaction to selected stimuli is always rewarded by the handler, the reward reinforces the dog's behavior, motivating the dog to repeat the actions. A properly trained handler learns to recognize the dog's reactions and to recognize the source because of the characteristics of the reaction learned during training.

1-9. Superiority of senses

Under almost any set of circumstances, a properly trained dog can smell, hear, and visually detect movement better than a person. Trained dogs respond to selected stimuli and alert their handlers to that which they have been trained to detect. The dogs' detection abilities can be inconsistent; however, some variance is normal and must be considered when evaluating a dog's performance.

1-10. Identifying MWD team missions

The following should be considered when evaluating the possible use of MWD teams:

a. *The task to be performed.*

(1) *Deterrence.* The obvious presence and well-published activities of the MWD teams can successfully deter trespassers, vandals, violent persons, and so forth.

(2) *Detection.* If the desired task is to deter unauthorized or suspect individuals, the team should be assigned to a location and during a time of day or night when visual, sound, and odor distractions are at a minimum. Examples include patrolling shopping or industrial areas after normal operating hours, patrolling a housing area during duty hours or at night, patrolling an airfield or aircraft maintenance area after normal duty hours, or searching a supposedly unoccupied building. Narcotics and explosives detector dogs (EDDs) are trained to perform their detection skills under an extremely wide range of conditions so that location and time of day are not critical factors.

b. *Other tasks.* Patrol dogs also are trained to apprehend suspects at or near a crime scene, stop those who may attempt to escape, and to protect their handlers from harm. Some patrol dogs may be able to track suspects who have left the scene of a crime. Chapters 2 and 3 provide more details regarding the variety of ways that patrol dogs can be used.

Section IV

Starting a Military Working Dog Program

1-11. Determining need

The installation provost marshal (PM) or the MP unit commander must take the initiative to establish the local MWD program. The specific needs must be determined and the costs of the program must be justified. There is no easy formula to determine the number and type of MWD teams needed at any particular unit or installation. The decision process involves a thorough risk and crime analysis, and an accurate evaluation of the requirements of the entire MP mission. Normal, emergency, and contingency conditions will be analyzed for all security, law enforcement, and combat support missions.

a. Some of the factors to consider when determining the need for MWD teams include:

- (1) The unit mission.
- (2) The size of the unit's area of responsibility.
- (3) The size of the installation population or the number of personnel to be served by the unit.
- (4) Incident rates for appropriate crimes against property (for example, housebreaking, burglary, vandalism), crimes of violence (for example, assault, rape, bomb threats, and incidents), and drug usage (criminal cases, quantity of substances seized, level of self-admitted drug abuse, urinalysis test results, and so forth).
- (5) Present capability and the commitment of a portion of the manpower resources as handlers.
- (6) The types of terrain on the installation or in the probable areas of deployment.
- (7) The types of combat support missions for which MWD teams can be used.
- (8) The number of installation facilities or areas that can be more adequately protected because of the availability or use of MWD teams. Included would be hospital parking areas, soldier and dependent housing areas, warehouses, airfields, installation entry points, munitions storage areas, retail facilities, and stadiums.
- (9) The capabilities and limitations of MWD teams when assigned to certain types of duties. (For more information, see chap 2.)
- (10) Additional considerations or guidelines to use in determining the need for a dog program (or for determining the number of dogs needed in a program) are contained in appendix B.

b. Probably the most difficult obstacles to overcome in order to establish a unit or installation MWD program concern the cost and construction of required kennel facilities. Kennel facilities should be constructed before dogs begin to arrive, but must be completed and available within one year after the dogs begin to arrive. Therefore, planning for MWD teams requires an early commitment to provide resources and construct the necessary kennel facilities. When planning for a MWD program, the PM or MP unit commander should ensure that the advantages of adding MWD teams to the MP force and the associated costs are justified by reasonable expectations of reduced crime rates and increased security. Accordingly, the justification should consider such factors as the following:

- (1) Increasing the effectiveness of the MP.
- (2) The additional areas that can be protected using MWD teams.
- (3) The additional tasks that can be done with MWD teams that cannot be done, or cannot be done as well, with present manpower and equipment resources.

1-12. Kennel construction approval

Once the need and justification for a MWD program are established, the PM or MP unit commander initiates a request to the installation facilities engineer to develop the kennel facility design. Chapter 7 gives extensive guidance on kennel design and location that will meet local conditions and requirements. The standard designs significantly lower the cost of kennel facilities. Cost must be kept as low as possible to ensure that funding can be provided; therefore, kennels should not use expensive construction materials when less expensive materials accomplish the same purpose. (Some features

such as the separation between kennels, ventilation, and safe electrical connections are necessary.) Before the kennel design has been finalized, the activity or installation veterinarian should be consulted to ensure that minimum veterinary requirements are included in the final design. After kennel designs are completed and construction costs estimated, the kennel project is submitted for approval and funding to the installation commander. The request for authorization of MWD teams must include the statement that the commitment has been made to fund and build kennels.

1-13. Manpower requirements

Approval for manpower requirements requires identifying the specific MP or civilian positions (by paragraph and line number) on the unit modified table of organization and equipment (MTOE) or table of distribution and allowances (TDA) which will be the handlers and kennelmaster. The request for change to authorization must identify the correct additional skill identifier (ASI) for the types of dogs and handlers being requested, and the grades must be appropriate (E4 and above, as prescribed in AR 611-201). The request for change to the personnel authorization (addition of the ASI to an authorized or required MP position) normally is approved by the appropriate major Army command (MACOM). The approved manpower authorization may be used (after the request for authorization for dogs has been approved) as the basis for requesting handler training. Approved manpower spaces must be on MTOE/TDA for six or more months before personnel are needed to give enough lead time for any assignment action.

1-14. Requests for authorization of military working dogs

Requests for authorization of MWDs and their shipping crates are submitted through command channels according to AR 310-34 and AR 310-49 on DA Form 4610-R (Equipment Changes in MTOE/TDA). Part I is self-explanatory. The request for authorization must identify the nomenclature and line item number (LIN) for the type dogs being requested, as well as specify the number of dogs of each type being requested in Part II. Part III, Personnel, also should be completed so the approving authority has verification that the correct handlers (by number, ASI, and rank/grade) are being requested. Part IV, Justification, contains a complete justification for the dogs being requested as required by AR 190-12. If additional space is needed, continue on plain white, letter-size paper. DA Form 4610-R is forwarded through command channels as a letter request for authorization of equipment. Approval authority for all requests for authorization of MWDs is at Headquarters, Department of the Army (DALO-EARA-A).

1-15. Requesting authorized military working dogs

a. The approved request for authorization of MWDs may be used as the authorization document to submit Military Standard Requisitioning and Issue Procedures (MILSTRIP) requisitions to obtain authorized dogs. MILSTRIP requisitions are submitted via message to Commander, U.S. Army Aviation and Troop Command (ATCOM), ATTN: AMSTR-MSFC, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. ATCOM will acknowledge receipt of the requisition and prepare a Military Interdepartmental Purchase Request (MIPR), which is forwarded to the 341st Military Working Dog Training Squadron. A veterinary letter must accompany any MILSTRIP requisition when requesting a one year or less replacement MWD. MILSTRIP requests should not contain the words "emergency" or "urgent." If a unit believes it has an emergency or urgent need for a MWD, the unit should contact ODCSOPS (DAMO-ODL), before submitting a MILSTRIP requisition. (See AR 190-12 for further guidance.)

b. All dogs are trained by the 341st Military Working Dog Training Squadron, Lackland AFB, TX. These dogs are used to fill MILSTRIP requisitions and as training aids for handler training. Requisitions are filled on a first-come, first-serve basis; therefore, new or replacement requisitions for MWDs should be submitted as soon as a requirement is identified.

1-16. Obtaining equipment

Equipment needed to support the unit MWD program is listed in chapter 8. Individual items such as leashes, collars, and muzzles are shipped by the 341st Military Working Dog Training Squadron with the dog. The unit orders feed pans, water buckets, arm protectors, protective suits, other support items, and replacement equipment through normal supply channels.

Section V

The Military Working Dog Section

1-17. Military working dog section organization

There is no standard organizational structure because of the many types of units and many functions which may be performed by MWD teams. Usually, the kennel operation and MWD team training responsibilities are assigned to the kennelmaster. Operational control of MWD teams may be assigned to other leaders and depends on the mission of the unit and the number of MWD teams. The kennelmaster and each of the handlers are responsible for advising the officer or noncommissioned officer (NCO) who is assigned operational control of one or more MWD teams, how to best utilize the team. Operational control may be retained by the commander, delegated to a platoon leader or platoon sergeant, or attached to the PM section with operational control assigned to a member of the PM's staff.

1-18. Military working dog section composition

The MWD section is composed of the kennelmaster, the handlers, and the MWDs. Larger kennels may have an assistant kennelmaster. One or more senior handlers may be assigned responsibilities as trainers. When manpower is available, other personnel may be used for kennel support.

1-19. Duties for military working dog personnel

a. Kennelmaster. The kennelmaster is the noncommissioned officer in charge (NCOIC) of the MWD section. The kennelmaster directly supervises the kennel operation, is responsible for all training, and ensures that MWD team proficiency is maintained. The kennelmaster supervises the care and feeding of the dogs, coordinates training and duty schedules, ensures that the administrative, accountability, and medical records are maintained, obtains all training support requirements, and supervises the kennel facility maintenance. In summary, the kennelmaster has direct supervisory responsibility for the unit MWD program. The requirements for assignment as a kennelmaster are prescribed in AR 190-12. Because of a kennelmaster's unique expertise, he or she should be a direct participant in all planning for the use of MWD teams. The kennelmaster's duties and required tasks include, but are not limited to:

(1) Knowing the mission of the MP unit or the unit to which MWD teams are attached, and how the MWD teams aid in accomplishing the mission.

(2) Knowing the threats to and vulnerabilities of personnel and resources being protected by dog teams which include:

(a) Assisting leaders in preparing operating procedures and instructions for the utilization of MWD teams.

(b) Training handlers according to the operating procedures so that teams are operationally efficient and dependable.

(3) Developing and implementing a comprehensive MWD team training program.

(4) Making sure that MWD teams are skilled in their team functions by frequently evaluating team proficiency and duty performance.

(5) Making appropriate provisions for the health, safety, and care of assigned dogs, and ensuring that each handler properly cares for his or her assigned dog.

(6) Making sure that each handler understands the physical and psychological characteristics and capabilities of their dog, the basic principles of dog training, and the advantages of using MWDs for MP missions. Also, the kennelmaster will make sure each handler is

properly trained to detect and interpret the dog's responses to persons, narcotics, explosives, or other stimuli to which the dog has been trained to respond.

(7) Obtaining equipment and supplies for the MWD section, as needed.

(8) Advising anyone assigned operational control of MWD teams on the best ways to use the teams.

(9) Performing trainer duties whenever a competent handler is not available.

b. Kennel support. A commander may provide a kennelmaster with personnel who are interested in becoming handlers or personnel who need to understand the training and functions of MWD teams. These kennel support personnel will be trained to perform sanitation and maintenance of the kennels, support building, and other areas and equipment that are included in the kennel facility; they will be assisted by handlers whenever working in proximity to MWDs. Kennel support personnel will not be used to train and handle dogs. Persons who have been relieved of MP duties for misconduct, who are pending investigation or disciplinary action, or who are subject to other adverse personnel actions should not be assigned to kennel support duties.

c. MWD handlers. Each handler is personally responsible for their assigned dog. The handler trains, employs, feeds, cares for, cleans, and otherwise maintains his or her assigned dog in every way. The dog depends directly on the handler and, in keeping with the principle of one dog—one handler, the dog should never have to depend on anyone other than the assigned handler. The handler is responsible for the cleaning and maintenance of the dog's kennel. The handler is directly responsible to the kennelmaster for the operation, maintenance, and cleaning of the kennels, kennel support building, training area, exercise area, obedience course, and any other areas or equipment that are included in the kennel facility. The handler is responsible for maintaining accurate, complete, and current training and utilization records. The kennelmaster may assign handlers any other appropriate duties and responsibilities.

1-20. Military working dog handlers

MWD handlers are MP or civilian employee personnel who have been trained to use a very specialized piece of equipment. Military handlers are MP personnel first, capable of performing the standard MP tasks appropriate for their skill level. MP personnel who want to become MWD handlers should be volunteers. The standard of grade authorization (SGA) for dog handlers begins at E4. Handlers formally are trained and certified by the 341st Military Working Dog Training Squadron, Lackland Air Force Base, TX, or an equivalent formal course approved by the HQDA, ODCSOPS (DAMO-ODL-S). Handlers cannot and will not be trained through on-the-job training (OJT). Use of force policies and the need to be able to control the dog at all times make OJT of handlers unsafe and improper. The use of unqualified personnel to handle dogs also may subject the Army to unacceptable liability. At no time will an unqualified dog handler work with a MWD dog for any reason.

a. The prerequisites and standards for MP personnel who want to become a dog handler are prescribed in AR 190-12.

b. Personnel who successfully complete formal handler training may be stabilized in their present duty assignment according to Army policies. If stabilization of handlers is desirable, it may be obtained by reporting when the handler starts and when the handler successfully completes handler training to the Commander, US Total Army Personnel Command (PERSCOM), ATTN: TAPC-EPL-M, Alexandria, VA 22333-0400.

c. The installation or unit receiving a newly trained handler is responsible for the documentation of the handler ASI in the soldier's personnel records.

1-21. Military working dogs

All dogs trained and used as working dogs by the Army are procured by the 341st Military Working Dog Training Squadron, Lackland AFB, TX. Usually, only the Belgian Malinois and German Shepherd breed dogs are accepted for military use, but other breeds may be used for special purposes.

a. German Shepherd dogs are used as the standard breed because of their unique combination of traits. Shepherds are intelligent, dependable, predictable, easily trained, usually moderately aggressive, and can adapt readily to almost any climatic conditions. While many dog breeds exhibit some or most of these traits, the Shepherd more than any other breed, most consistently exhibits all of these traits.

b. Small breed dogs are being used in special situations as narcotics detector dogs. These dogs are trained only for detection and are not suitable for other duties. This limitation on their use means lower cost effectiveness than the patrol trained detector dogs, and requires the use of small breed dogs remain limited to special situations. Because of this lower cost effectiveness and because of the lack of a wartime mission for small breed detector dogs, the program has been eliminated. Small breed dogs in the system are to be replaced by attrition by the narcotic detector dog. Authorization documents must be changed to reflect this change.

c. The 341st Military Working Dog Training Squadron specifies the breed and other physical requirements for dogs offered for use in the MWD program. Dogs do not have to be purebred or registered, but must display the predominant characteristics of their breed. The 341st Military Working Dog Training Squadron will provide requirements upon request.

d. Since military duties demand strength and stamina, all dogs must be in excellent physical condition. Minor physical defects may be acceptable provided they do not impair the dog's ability to work. Dogs should be moderately aggressive and must not be gun shy.

e. The 341st Military Working Dog Training Squadron has prepared an evaluation packet for use by kennelmasters and veterinarians to field screen all dogs being offered for sale or donation to the military. This packet is available from MACOMs. Field screening helps to eliminate dogs that are clearly unacceptable for military use without the expense of shipping the dog to and from the 341st Military Working Dog Training Squadron. As a general rule, dogs will not be accepted from donors outside the customs territory of the United States.

f. The majority of dogs trained and used by the military services are purchased from the open market. Kennelmasters and handlers can help recruit qualified dogs. Anyone interested in donating or selling a dog to the U.S. Government should contact the Program Manager, 341st Military Working Dog Training Squadron, Lackland AFB, TX 78236-5000, or (toll free) 1-800-531-1066.

1-22. Replacement of military working dogs

The method of replacing MWDs and MWD teams according to the team concept is prescribed in AR 190-12.

1-23. Disposition of disabled dogs

When an MWD becomes incapacitated and can no longer perform services beneficial to the Government, euthanasia of the dog is authorized.

a. Dogs are considered incapacitated and may undergo euthanasia:

(1) To end suffering from diseases, injury, or permanent physical disability.

(2) To prevent the spread of a contagious disease.

(3) When they are fractious or too vicious for retraining.

(4) When they are not fit to work because of medical or physical disabilities associated with old age.

(5) When they cease to be effective.

b. Dogs do not undergo euthanasia solely because of advanced age if they continue to be physically capable of performing useful duty.

c. Before a dog undergoes euthanasia, written approval must be obtained from the first field grade rank (Major or above) commander in the supervisory chain of command of the unit owning the dog. A letter recommending euthanasia identifies the dog by name and tattoo number and specifies the reason for the recommendation. If the reason is medical, the recommendation must be supported by a physical evaluation from a veterinarian. The commander approves

or disapproves the euthanasia by endorsement of the letter of recommendation.

d. The veterinarian may euthanize a dog without prior written approval of the appropriate commander in an emergency when a delay would cause undue suffering and pain to the dog. In this case, the veterinarian will document the circumstances and necessity for euthanasia by writing a letter to the appropriate commander.

e. Whenever a dog undergoes euthanasia, all medical and service records pertaining to the dog are sent to the 341st Military Working Dog Training Squadron where these records are maintained in a central records repository.

Section VI

Operation of the Military Working Dog Section

1-24. Scheduling and employment

The kennelmaster assists the commander or operations officer in developing duty schedules, duty cycles, duty hours, and methods of using MWD teams that best support MP operations. Scheduling must allow time for mandatory proficiency training and for the care of the dogs, kennels, and equipment.

a. The duty schedule must allow at least four hours each week for proficiency training in both patrol and detector tasks—eight hours for dual certified dogs. One period of four hours proficiency training each week is preferred, rather than shorter periods each day or two. Daily work schedules should provide one to two hours for feeding, grooming, and exercising the dogs, and for maintenance of equipment and kennel facilities.

b. Proficiency training should be conducted in both a training and a duty environment, and should include repetitive training on each of the dog's capabilities. Any deficiencies or weaknesses must be stressed during training to regain and maintain at least minimum proficiency.

c. Some exercising of the dog is desirable when dogs are taken out of the kennel for duty. Detector dogs should not be exercised to the extent that they begin to pant. If such exercise is necessary, they must be allowed to rest before being required to search.

d. MWD teams should be worked in a variety of duty positions each week so that the team is exposed to as many different situations as possible. The variation enhances team proficiency and keeps the dog from becoming bored or making stereotyped responses.

e. Patrol-trained detector dog teams perform normal patrol dog team duties when not needed for detection work. Patrol detector teams cannot be limited to detection duties only. Patrol detector teams need to maintain their patrol dog skills. Lack of exposure to patrol dog tasks can very quickly cause loss of proficiency.

1-25. Competitive events

MWD teams should be encouraged and allowed to participate in competitive events, seminars, conferences, and so forth, conducted by civil or MP agencies or officially recognized police canine associations. The exposure to competitive events permits a MWD team to develop skills, to see and learn advanced employment and training techniques, and to gain a better understanding of the function of the MWD. Although different tasks may be required or different methods may be used, the handler should be able to identify those methods and tasks that apply to military missions. In this way, the team's proficiency and effectiveness are enhanced.

1-26. One dog—one handler

A MWD team includes a handler and his or her assigned dog. The team concept joins a dog and handler together as a team. The team is not split unless the dog dies or the handler leaves the Army, the handler is trained with a different dog in one of the detector dog handler skills, or the handler is reassigned to a nonhandler duty position. The expense of training dog and handler as a team necessitates that dog and handler remain together for as long as possible. The permanent change of station (PCS) reassignment of dog and handler normally will be as a team. Dog and handler will not be

separated unless the reassignment orders state the assignment is not as a MWD team or the dog is medically ineligible for reassignment.

1-27. Control

MWDs are worked on- or off-leash depending on the situation. Handlers must be able to control their dog whenever it is off-leash. Kennelmasters and trainers must closely observe off-leash training so that any off-leash control problems are quickly identified and corrected.

1-28. Privately-owned and stray animals

a. Only dogs which are procured and trained as MWDs are housed in U.S. Army kennel facilities. MWD handlers on temporary duty (TDY) must make advance arrangements with the kennelmasters at enroute or TDY locations for overnight kenneling of their assigned dog. Privately-owned animals, unit mascots, or stray animals will not be allowed to enter any MWD kennel facility.

b. Facilities used to house stray or abandoned animals will not be located with or operated as part of an MWD kennel facility. Personnel assigned to the MWD section will not be used to support stray apprehension or operation of stray or abandoned animal facilities. This prohibition exists to prevent contamination of the kennel and the potential spread of infectious diseases which may be carried by animals other than MWDs.

Chapter 2 Utilization

Section I General

2-1. General information

a. The patrol dog is the basic Army MWD. Some patrol dogs subsequently may be trained in additional skills, such as tracking, scouting, narcotics detection, and explosives detection. All of the MWD employment concepts which have been developed revolve around the basic skills of the Army patrol dog. All dog handlers, even those assigned to narcotics/contraband detector dogs are first trained as patrol dog handlers. The patrol dog handler training teaches handlers the importance of caring for and feeding their assigned dog, the importance of obedience and proficiency training, and helps handlers to develop complete understanding of their role in the MWD program.

b. The length of tours of duty for MWD teams should be consistent with the needs of the command, and schedules should consider the climate and terrain conditions which can enhance or reduce a dog team's effectiveness. Scheduling also should fully consider the time necessary for training the dog, caring for and feeding the dog, and kennel sanitation and maintenance. The standard for employment is approximately 30 hours per week, and at least four hours of proficiency training per week in each certified specialty. It may be necessary to periodically increase the frequency or length of proficiency training to compensate for or correct training or operational deficiencies. When proficiency training must be increased, there will be some tradeoff with utilization. However, it should be possible to maintain the utilization and proficiency training ratio. When both training and utilization consistently fall below the employment standard, a reduction of MWD team authorizations is indicated. Authorizations should be reduced to the number that can maintain the standard. Excess MWD teams should be reassigned to areas where they are needed.

c. There is no need to withdraw MWD teams from their posts during inclement weather. The dog's ability to detect an intrusion will still exceed that of his handler or many other physical, mechanical, or electrical intrusion detection systems (IDS). MWDs stationed in cold weather areas should be acclimated to their boots and blankets during training so the dogs will not resist wearing protective equipment when weather conditions necessitate its use.

d. Whenever possible, a handler should salute an approaching or passing officer. However, maintaining control of the dog is more critical. The action of the handler saluting and of an officer returning the salute could be misinterpreted by the dog as an attack on his handler and could result in the dog attacking the officer. If a salute cannot be safely rendered, an appropriate greeting should be given. Full attention should be given to controlling the dog if the officer elects to give a salute.

2-2. Use of force

a. The patrol dog is trained to perform the primary function of detecting the presence of unauthorized personnel and warning its handler. Once the handler has been alerted, it becomes the responsibility of the handler to cope with the situation in the most appropriate manner. Frequently, the appropriate action is to keep the intruder or area under surveillance until other MP personnel can arrive. The secondary function of the patrol dog is to pursue, attack, and hold any intruder who attempts to avoid apprehension or escape from custody. However, releasing the dog constitutes the conscious application of physical force and, therefore, is governed by the use of force requirements of AR 190-14 and AR 190-12.

b. As a measure of force, release of a patrol dog to pursue, attack, and hold a person may result in physical injury to the person against whom the dog is released. As a result, AR 190-14 requires that all lesser means of force must be attempted when it is reasonable to do so. The duty of the MP, whatever the situation, is to apply only the minimum amount of force necessary to prevent escape or apprehend a person engaged in a criminal act. The handler also bears a distinct responsibility for the safety of innocent persons, including other MP personnel. Handlers must avoid releasing the dog to attack until the danger to innocent persons can be eliminated or minimized. One method of minimizing danger is to ensure that all MP personnel have been trained regarding the actions to take and the actions to avoid when working around MWDs. Trained MPs can then assist innocent persons who may be present in any area from inadvertently becoming the object of an MWD's attack.

c. When the handler determines that the dog should be released to attack, the handler should disconnect the leash so that the dog will not endanger itself because of a trailing leash.

Section II Employment of Patrol Dogs—Law Enforcement Operations

2-3. Walking patrols

The patrol dog's contribution to the MWD team law enforcement efforts is most effective when the team is on foot. Some of the law enforcement duties that a patrol dog team can do as a walking patrol include checking or clearing buildings and patrolling parking lots, dependent housing areas, and troop billet areas. The following factors should be considered when planning patrol dog team walking patrols:

a. Since it is easily seen, a patrol dog used during daylight in congested areas provides a good psychological deterrent to certain crimes. Patrol dogs are tolerant of people, and the presence of a large number of people does not significantly reduce the patrol dog's usefulness, except as a detector.

b. More effective use of the patrol dog's detection ability can be made by using the patrol dog team during darkness or periods of reduced visibility and where there are fewer distractions. A person fleeing a crime scene at night may not be detected by the MPs, but a patrol dog normally will be able to detect and locate a fleeing suspect. When necessary and appropriate, the patrol dog also is much more effective at pursuing and holding the suspect.

c. A larger number of buildings and parking lots can more easily be checked or searched with a patrol dog team than by a single MP.

d. Periodic use of patrol dog teams around on-post schools, especially when school is starting and dismissing, may help deter potential vandals, child molesters, exhibitionists, and illegal drug activities.

e. Patrol dog teams also can provide effective security for communications facilities, military equipment, and command posts.

2-4. Mobile patrols

a. Giving patrol dog teams a mobile capability significantly increases their potential area of coverage and allows the teams to perform a greater range of functions during a duty shift. The team is normally unaccompanied, but other MPs may go with the team when the need arises.

b. Whenever possible, the mobile patrol dog team should be assigned a sedan, station wagon, or other passenger type vehicle. The patrol dog will always ride with the handler in the passenger compartment, regardless of the type vehicle. Placing portable kennels in the beds of pickups for transporting dogs is not appropriate for duty. It renders the dog unable to assist his handler, the dog does not stay alert, and the dog cannot protect itself.

c. While patrolling, the handler may allow the dog to be off-leash on the front or rear seat of the vehicle. The rear seat of the vehicle should only be used when a cage does not separate the dog and the handler. A stable platform should be provided to assist the dog in maintaining its position. Suitable platforms may be built locally by adding two 2-inch by 2-inch folding legs to one side of a 24-inch by 30-inch rectangle of 1/2-inch plywood. The length of the legs is determined by the distance from the top of the seat to the floor. The angle or curvature of some vehicle seats may require the addition of a spacer block between the seat and the platform to level the platform. The surface of the platform will be covered with hard rubber matting or other nonskid surface.

d. The dog is required to remain in the SIT position as much as possible to observe the surrounding and activities, and so the dog can be seen. The handler should never allow the dog to lie down or go to sleep, so the dog learns to distinguish between working time and resting time. To prevent eye injury from insects or other foreign objects, the dog must not be allowed to place its head out the window while the vehicle is moving.

e. Mobile patrols are most effective when the patrol dog team uses the ride-awhile, walk-awhile method. The team is able to cover a large patrol area and the periodic exercise helps to keep the dog alert.

2-5. Alarm responses

In responding to an alarm condition at facilities such as clubs, finance offices, or banks, the patrol dog team should be among the first MPs on the scene. The patrol dog may be used to search and clear the building and immediate area, and help with any apprehensions. If the patrol dog must be used to track a suspect, other persons should attempt to avoid contaminating the area with scents and tracks that may confuse the dog.

2-6. Building checks and searches

A patrol dog team is especially effective in checking and searching buildings such as commissaries, post exchanges, finance offices, banks, and warehouses.

a. The patrol dog team can check buildings visually while patrolling, and also can stop and dismount so the handler can physically check doors and windows. These checks should be made with the dog on-leash. To take maximum advantage of the dog's scenting ability, the handler should approach buildings from downwind.

b. If a building is open or forced entry is evident, patrol dog teams may be used to track hidden intruders from point of penetration to their location. Patrol dogs may be released to apprehend an intruder suspected of committing a serious offense when the only alternatives are escape or the use of deadly force.

(1) Prior to searching a building, the handler will determine whether to make the search with the dog on or off the leash. Some of the factors which must be considered include the following:

- (a) The time of day or night.
- (b) Evidence of forced entry.
- (c) The type and size of the building or area to be searched.
- (d) The danger to any innocent persons in the area.

(e) The dog's ability to work off-leash.

(2) Prior to release of the dog inside a building or enclosed area, a clear voice warning will be given to any persons inside or in the area, to come out immediately, and that failure to comply with instructions will result in the release of a trained MWD. All persons will be cautioned that the dog may attack without warning, and that they could receive physical injuries. The handler will maintain voice control of his dog throughout the search.

(3) On-leash searches will be preceded by a warning similar to the one for off-leash searches. The searching team should be followed by at least one other MP to protect the search team.

2-7. Vehicle parking lots

a. Dog teams are effective in detecting and apprehending thieves and vandals in vehicle parking lots. Also, the presence of the patrol dog team may deter potential acts of theft and vandalism. The team can be most effective by alternating between vehicle and foot patrol of the parking lots. During hours of darkness, when there is no activity in a parking lot, the team should approach the lot from the downwind side. If the dog responds, the handler should locate and challenge the suspect for identification.

b. If a suspect tries to escape or avoid apprehension, and the handler is reasonably certain the suspect has committed or is attempting to commit a serious offense, the handler should give a clear warning to the suspect to halt. When lesser means of force have failed to stop the fleeing suspect, the patrol dog may be released to pursue, attack, and hold. If it is not safe to release the dog, the handler may attempt to follow the individual if the patrol dog has the ability to track.

2-8. Dependent housing and billet areas

a. Using patrol dogs in family housing or in the vicinity of troop billets helps deter and decrease criminal actions. Although the team should have the ability to move quickly from one area to another, actual patrolling of housing and billet areas should be mostly dismounted. Frequent contact with area residents helps to reinforce the dog's tolerance of people, while at the same time helping to build the confidence of the residents in the efforts of the MPs to keep their community safe and secure. The handler is responsible for determining how much socializing the dog needs and will accept without losing its desired aggressiveness. Community residents should not fear the patrol dog team, but they should have a healthy respect for the team's capabilities.

b. PMs, security officers, or MP commanders will establish procedures governing the release of a patrol dog in family housing or billet areas consistent with Army use of force policy. Apprehensions for minor offenses should not normally necessitate releasing the dog. Children involved in minor incidents, who fail to heed warnings to halt, should be followed to their quarters rather than releasing the dog to catch them. A patrol dog with an ability to track can be used very advantageously in both housing and billet areas with minimum risk to innocent persons. For example, if a "peeping tom" is reported, a dog team may successfully track and apprehend the offender. Tracking procedures are further discussed in paragraph 2-16.

2-9. Traffic violations and accident investigations

a. When a traffic stop is made, the patrol dog may accompany the handler on-leash without interfering with the issuing of traffic citations. Frequently, the presence of the dog will cause many violators to be more willing to cooperate.

b. MWD teams should not be used for traffic control or accident investigation duties. If exceptional circumstances require that they perform these duties, the dog should be secured in the vehicle. In warm weather, dogs left in vehicles can overheat in a very short time because of poor shade or poor ventilation. The handler must make sure there is adequate ventilation for the dog, but at the same time make sure that the dog is unable to get out of the vehicle to avoid potential injury to the dog. All windows need to be rolled up

far enough to prevent the dog from trying to get out to avoid potential injury to the dog.

2-10. Identification and apprehension of individuals

To check identification or to apprehend, the handler should always warn the person(s) that if they display any hostility to the patrol dog or the handler, the dog will attack without command. After an apprehension, a search is always done with the patrol dog in the guard position. A backup MP patrol should be used to transport apprehended personnel. If the MWD team must transport apprehended personnel, the patrol dog should be positioned between the handler and the offender.

2-11. Protecting distinguished visitors

Patrol dog teams may assist in protecting distinguished visitors by providing security around quarters and conference sites, or by searching and clearing buildings.

2-12. Fixed post (stakeout)

The primary function of a patrol dog team on a fixed post is surveillance over an area or building. If used outside, the team should be located downwind where the dog can detect an intruder by scent, sound, or sight. If this is not possible, the team should be located so an intruder can be detected by sight or sound. When used inside, the dog depends mostly on its hearing. Other MPs may be used with dog teams on fixed posts.

2-13. Entry control

a. A patrol dog team may be used on gate duty or other entry control functions. The dog's primary function is deterrence and protection of the handler. Use of MWD teams for entry control, however, is not recommended because of the:

- (1) High volume of traffic.
- (2) Large number of distractions.
- (3) Reduction of the handler's ability to maintain positive control over the dog.

b. If circumstances necessitate using MWD teams at entry control points, the dog should not be confined inside a gate house where it could not respond to its handler if needed. Further, the MWD team would need to be frequently moved to other duties to keep the dog alert and proficient.

2-14. Protection of funds

a. Patrol dog teams, used to escort and safeguard funds, may deter some people from attempting to rob the courier. Unlike people, a patrol dog does not fear an armed or unarmed person and, if fired at, will pursue and attack. This is an important aspect of the patrol dog's training to emphasize during demonstrations and in news releases.

b. While escorting funds, the patrol dog team should follow the courier to observe anyone approaching. If a robbery is attempted, the patrol dog is released to attack. Couriers who are reluctant to ride in the same vehicle with the patrol dog should sit in a back seat with the MWD team in front, or ride in another vehicle with the MWD team following.

2-15. Confrontation management

Patrol dogs should be used cautiously in confrontation situations, since their presence could aggravate a situation. The Army use of force policy applies as much to confrontation situations as it does to any other type of situation. (See guidance in paras 2-2 and 2-17). A patrol dog handler who is confronted (for example, in a club or housing area) should avoid entering a building or a closed area alone with the patrol dog. The handler should use the minimum necessary force to withdraw safely from a confrontational situation and then immediately report the incident to his supervisor so that necessary actions can be taken.

2-16. Tracking

a. Not all patrol dogs have been trained to track. Among the dogs

trained to track, not all have the same tracking ability. The kennel-master must know which of his assigned patrol dogs are good trackers and use the best patrol dogs for tracking missions.

b. When the need for tracking arises, personnel who are on the scene should avoid the area and keep other personnel from entering the tracking area. This will reduce contamination of the area with extraneous or confusing scents.

c. To start the track, the patrol dog is taken to the last known location of the person to be tracked and allowed to find the scent. If there are any articles, such as clothing, that have the person's scent, the dog is allowed to smell them to help identify the correct scent. Any articles with the person's scent should be taken along on the track to remind the dog periodically of the correct scent.

d. To eliminate further contamination of the track, the dog team always precedes the search party. The search party should maintain sufficient distance to avoid distracting the dog and to allow the dog to return to an earlier point to regain a lost scent trail, if necessary.

e. The dog should begin tracking as soon as possible because success often depends on the strength of the available scent. The passage of time, wind strength, and other environmental conditions will affect the strength of the scent. Human scent adheres well to grass and brush which can improve the chances of success. Paved or gravel areas, and strong scents such as fertilizer, burned grass, or spilled oil or gasoline impede the tracking ability. Human scent remains longer on cool, moist ground. Direct sunlight, extremely dry ground, or heavy rain dissolves scent rapidly, making tracking more difficult.

f. During tracking, the dog may locate discarded items of evidence or clothing. Allow the dog to smell them but do not allow it to pick them up in its mouth.

g. The methods used to track lost personnel, especially children, are different from those used to track a fleeing suspect. Only dogs who have been trained to track successfully for lost personnel should be used for that purpose to avoid any danger of harming innocent persons.

h. The MWD will wear a tracking harness (NSN 3770-00-240-6620) for all tracking missions. At least 10 percent of the assigned patrol dogs (or at least one patrol dog) should be able to track a person on a trail at least four hours old for at least two miles over varied terrain.

2-17. Riot and crowd control

a. MWD teams will not be used for crowd control or direct confrontation with demonstrators unless determined to be absolutely necessary by the responsible commander. Use of patrol dog teams for direct confrontation with demonstrators is not recommended. In accordance with Army use of force policy, the application of physical force against a person who cannot reasonably be suspected of committing an offense is not appropriate. Presence in a crowd does not necessarily constitute an offense or a situation where it would be reasonable to apply the degree of physical force of a patrol dog. A patrol dog would not be used unless the person is engaged in some other readily apparent criminal behavior such as theft, destruction of property, or assault.

(1) The duty of the MP, whatever the situation, is to apply only the minimum amount of force necessary to prevent escape or effect a lawful apprehension of a person engaged in a criminal act. In a crowd situation, there is no certainty that a patrol dog will attack, pursue, and hold the person against whom the dog has been released. Therefore, under no circumstances, will dogs be released into a crowd.

(2) The high levels of confusion and excitement, and the large number of antagonists all contribute to the difficulty of employing patrol dogs properly. Frequently, the appearance of dogs at an angry crowd scene has resulted in an escalation of violence of the crowd. The crowd often will challenge the MPs to use the patrol dogs as a measure of force, particularly if a situation can be provoked that can later be interpreted or challenged as being an unreasonable use of force by the authorities. According to crowd psychology, the crowd reasons that when authorities act unreasonably, the crowd is then

justified in also taking unreasonable actions. This includes criminal actions.

(3) The decision to employ patrol dogs must be weighed carefully by the responsible commander to be sure that if patrol dog teams are committed that all lesser means of force have been reasonably attempted and have failed. The commitment of MWD teams now comes only as an alternative to the use of deadly force to gain control of the situation. If a commander directs the employment of patrol dog teams for direct confrontation with demonstrators, the procedures listed below should be followed.

(a) During the otherwise peaceful stages of a confrontation, patrol dog teams should be held in reserve, out of sight of the crowd. As the situation worsens, dog teams may be moved forward to within sight of the crowd, but well away from the front lines.

(b) When committed to the front lines in direct confrontation, dogs are kept on short leash and allowed to bite when and only under the specific circumstances authorized by the responsible commander. Dogs will never be released into a crowd.

(c) Other riot control force personnel should be positioned approximately 10 feet from the patrol dog teams to prevent any unintentional bite injuries to riot control force personnel.

(d) In an open area with normal wind velocity, chemical riot control agents will not affect the patrol dog's ability to be both a physical and psychological deterrent. Handlers should, however, closely watch their dogs under such conditions. If the dogs show any signs of distress, have the dogs examined by a veterinarian as soon as possible.

(e) Patrol dog teams may be used to help apprehension teams catch and remove specific individuals in a group of demonstrators. In this role, the dog team is used only to protect the members of the apprehension team. The handler must exercise extreme caution in this situation because of the high level of activity and excitement. The dog will become extremely excited and agitated and could mistakenly bite or attempt to bite a member of the apprehension team. The handler must maintain positive control over the dog and immediately redirect the dog's aggressiveness toward the demonstrators.

b. MWD teams are extremely useful in performing a variety of duties supporting riot control forces. For example, patrol dog teams can be used to:

- (1) Protect critical facilities.
- (2) Provide security for important persons.
- (3) Provide security for law enforcement personnel and equipment held in reserve.
- (4) Provide security for fire fighters and fire fighting equipment.
- (5) Secure access control points.
- (6) Provide security along crowd escape valves.
- (7) Provide perimeter patrolling or area patrolling after the crowd has dispersed.
- (8) Provide explosives detection.
- (9) Position patrol dog teams on the outer perimeter of large open areas to hold the crowd while other forces apprehend demonstrators.

c. Dog teams may be posted around holding areas and processing centers to prevent the escape or liberation of prisoners. Patrol dogs can be used in many locations and situations where manpower shortages preclude assigning adequate manpower for security missions. FM 19-15 describes many situations where the application of initiative on the part of MPs to employ patrol dogs will significantly alleviate potential security problems.

2-18. Civil disasters

When directed or approved by proper authority, MWD teams may be provided to a civilian community in a humanitarian or domestic emergency. Care must be exercised in any of these situations to avoid violations of section 1385, title 18, United States Code (more commonly known as the Posse Comitatus Act). The responsible commander should work closely with the following to closely supervise and direct the activities of any committed MWD teams:

- a. The PM or security officer.
- b. The MP commander.

- c. The installation staff judge advocate (SJA).

Section III

Employment of Patrol Dogs—Security Operations

2-19. Security planning

The primary mission of patrol dog teams as assigned to security duties is to deter, detect, and help apprehend violators on Army property or to prevent access to Army resources by unauthorized personnel. Patrol dog teams may be used on almost any security post, but planners must be familiar with the capabilities of patrol dog teams so that teams can be assigned to those posts where they can be used most effectively.

a. Compared to one or more lone sentries, the patrol dog team offers a much greater intruder detection capability. In addition, it can cover a larger area. This increased probability of detection will, in many cases, discourage attempts by an intruder to gain access to resources. A well-trained team also has a better chance of locating and stopping an intruder.

b. A patrol dog team's effectiveness can be reduced when used on posts that deprive the team of the ability to adjust positions and maneuver to maximize natural abilities. For example, if the team's purpose is detection of intruders, placing the team in an area with a lot of people and constant activity deprives the team of most of its detection capability. If deterrence is the purpose of placing the dog team in high traffic areas, some benefit is gained because of the high visibility of the team. However, any deterrent benefit that may be gained can be lost to the degree that people realize that the team has been deprived of its detection capability. Using a patrol dog team on a security post where there is little room to maneuver to take advantage of wind direction or shadows, such as between fence lines, also deprives the team of most of its capability. When working on a post where the handler must focus on tasks other than working the dog, the dog's abilities, other than protecting his handler, are largely wasted. Finally, a handler usually is unable to quickly or effectively use his or her weapon because the handler also must control the dog. Therefore, a patrol dog team should not be used on a post where rapid, effective firepower is essential.

2-20. Post selection

In selecting security posts, select those posts where it is possible to maximize the advantages to be gained by using patrol dog teams, while minimizing the factors which tend to reduce the dog's capabilities. The area should be as free as possible of distractions that tend to confuse the dog or discourage it from reacting to changes in its environment. Planners must consider the location and size of the area to be protected, the condition and type of terrain, and the prevailing wind direction. All these factors are used to determine the number of dog teams and where the teams will be generally located. Where there are several limiting factors, adjust the size, number, and locations of the posts to compensate for any potential losses of team effectiveness.

2-21. Perimeter and distant support posts

Patrol dog teams are especially useful for perimeter and distant support posts because they are usually located well away from normal activity and large numbers of people. These posts also usually enclose large areas, and it would take a large number of single sentries to secure the area effectively. The large size of these areas allows the dog team to change positions to take best advantage of the prevailing wind direction. These posts may be secured only during periods of advanced security and high threat. Occasional random posting of these areas is recommended, especially during periods of low visibility such as darkness, rain, and fog. Barriers and obstacles, such as fences, buildings, gullies, and streams also must be identified and considered in security post planning. Place the dog team so that these obstacles offer the least interference to security.

2-22. Close boundary (CB) posts

CB posts differ from perimeter and distant support posts in that it is

closer to and dedicated to protecting specific resources. The reasons for using patrol dog teams for security are the same. The post is slightly different because the team is closer to the resource and cannot move around as much to work the wind. CB posts also are closer to human activity and other distractions, such as engine noise and petroleum, oil, and lubricant (POL) odors. These distractions may require setting up a different post location and post limits for a dog team than those for a lone sentry on the same post.

a. One of the decisions that most directly influences security is whether to post the team inside or outside the fence surrounding the resources to be protected.

(1) If placed inside a fence, the team can patrol close to and periodically check the resources. But, if the dog detects an intruder trying to enter the area, the fence may prevent the team from following the escaping intruder. Also, a decoy placed upwind of a dog team confined by a fence can distract the dog while other intruders penetrate the area downwind.

(2) If placed outside a fence, a patrol dog team can move around easier to work the wind and can more easily follow and respond to the source. However, the team cannot respond quickly to a problem inside the protected area. Also, a decoy placed upwind from the team can draw the team away from the resource and make it easier for others to attack from downwind.

b. The more a team's ability to work the wind is limited, the more the team must rely on sound and sight for detection. Planners must learn how environmental change affects a dog's ability to see, hear, and smell, so post locations and limits can be adjusted. Flexible posting also increases deterrence by allowing the team to avoid a set patrol pattern.

c. Using a patrol dog team in a lighted area makes it easier for an outsider to detect the team's presence, allows potential intruders to observe the team's movements, and increases the possibility of a successful penetration. The lights also may cause the dog to rely more on sight than on its other senses. Therefore, if the team must be used in a lighted area, it should be allowed to patrol a varied route, remain in shadows, or stand stationary in concealed downwind positions.

2-23. External intrusion detection systems (IDS)

Continuing development and use of IDS for security makes it necessary to reassess the role of patrol dog teams in security of priority resources where an IDS is used. Although IDS are designed to greatly reduce the probability of a successful area penetration, they are not designed to totally replace sentries or dog teams. IDS cannot "see" beyond the outer clear zones, cannot counter intrusions, cannot track the progress of an intruder force after penetration, and are subject to malfunction and breakdown. Patrol dog teams or sentries cannot counter all potential problems, but they can be used selectively to counter some of the IDS limitations. Security planners should develop plans which set an effective balance between sensor systems and dog teams. Some suggested functions for integrating dog teams into IDS-augmented security systems are as follows:

a. Patrol dog teams may be used inside or outside IDS-protected areas to give immediate response to areas not clearly seen by closed circuit television (CCTV), or to support security response teams in their role of alarm assessment.

(1) Inside protected areas, patrol dog teams may track hidden intruders from point of penetration to their hiding location.

(2) Patrol dog teams may be posted outside IDS-protected areas during periods of increased threat to expand the protected area beyond the range of the IDS. This use is particularly desirable when there is heavy vegetation beyond the perimeter clear zone, or when protected areas are located on or near installation perimeters and may, therefore, be easily accessible to the public.

b. A patrol dog team works effectively as an element of the security response team, or as an element of other designated response forces (RFs).

c. Patrol dog teams can be used to compensate for decreased IDS

effectiveness when poor visibility or other environmental conditions adversely affect the IDS equipment or when IDS is not functioning.

2-24. Mobile security patrols

The patrol dog team's training is especially useful for mobile patrols and RFs. As an individual patrol, a patrol dog team can cover individual areas or several areas, and can respond to incidents occurring in any area.

a. Individual mobile patrol duties may include alarm response, building checks, area surveillance and patrol, and identifying and apprehending intruders. Dog teams on mobile patrol can cover large areas quickly, and present both a physical and psychological deterrent.

b. When responding to a request for assistance, the handler must be given the precise location of the incident and whether the intruder is located inside or outside the protected area. If wind direction can be determined, the handler can plan his or her approach to the area from the downwind side. When the patrol dog team arrives, the personnel on the scene should point out the location of the suspected intruder and give the handler any other related information. While the patrol dog team closes on the intruder, other responding forces should follow or provide cover for the team.

c. Patrol dog teams check buildings in their patrol area to detect anyone using the building as concealment or to detect personnel who have entered a building illegally.

(1) The patrol dog team always approaches the building from downwind and checks the entire outside of the building first. This includes checks of any storage sheds, trash containers, and other possible hiding places. As the team circles the building, the handler physically checks doors and windows for signs of forced entry.

(2) If a handler finds an unsecured building, the handler should report the situation immediately and request a backup patrol before entering to search the building. While waiting for the backup patrol to arrive, the handler should locate himself or herself to be able to observe or allow the patrol dog to detect any person attempting to leave the building. An intruder may not leave the building the same way he or she entered but often will choose an exit that allows the least chance of detection.

(3) When the backup patrol arrives, the handler should discuss the building search method and locate the backup patrol in areas where they can best support the dog team. The area around the apparent point of entry should be kept clear until after the building has been searched or processed for any evidence by investigators.

(4) The handler decides whether to conduct the search on- or off-leash considering the dog's ability to work effectively off-leash, the type and size of building, the time of day or night, indications of forced entry, known or suspected contents of the building, and the possibility of innocent persons being inside. The handler should carefully select the best point of entry into the building, if there is a choice.

(5) Backup patrol personnel should select positions from which they can observe all possible exits from the building and any vehicles parked nearby. They should also be alert for any other personnel moving about the area.

(6) When all personnel are in position, the dog team prepares to enter the building. The handler must announce to anyone inside the building that a trained patrol dog is entering to search the building and give anyone inside a reasonable opportunity to exit. After an appropriate length of time, the patrol dog team enters and searches the building. Even if an intruder comes out or is found, the patrol dog team should always search and clear the entire building in case there are more intruders.

(7) The handler should allow the patrol dog to enter the building first to clear the immediate area of entry before the handler enters. All rooms and areas inside the building should be entered by the dog first. As the search progresses, some lights may be turned on to areas that were cleared but no light that would silhouette the team should be turned on at any time.

(8) If the dog responds, the handler should take cover, recall the dog, and put the dog on-leash. The handler then calls to the intruder to come out with hands raised or the dog will be released to attack.

The handler also should notify his backup that one or more intruders have been located. Help in making the apprehensions should be requested if necessary.

(9) If the dog does not respond and the building is cleared, the team should attempt to track away from the point of forced entry. Tracking may result in discovering the method of escape, discarded evidence, or finding the intruder.

d. As a member of a response team, a patrol dog team increases the response team's capability to find and apprehend suspects. The response team needs to frequently train and operate with the patrol dog team so that all actions are coordinated and predictable. A variety of response training exercises develop the ability of the team to work well together. The dog team should be the active member of the response team during all searches.

2-25. Secondary response forces

RFs are typically used as blocking forces and for sweeps and counterattacks. Patrol dog teams can greatly improve the capabilities of the RF. Some factors which must be considered are:

a. When used with blocking forces, blocking positions must be selected downwind from the dog team's position.

b. When used for sweeps, the RF moves into the wind with the dog team in the lead position.

c. In preparing for counterattacks, a dog team can often pinpoint the exact location of individual intruders.

d. In clearing a position that has been counterattacked successfully, a dog team can help locate and catch hidden intruders. EDDs can be used to help clear the area of explosive charges, weapons, and ammunition.

Section IV

Employment of Patrol Dogs—Combat Support Operations

2-26. General mission

In combat support operations, patrol dog teams are used to enhance the detection capabilities of the combat support force, and to provide a psychological deterrent to hostile intrusions. In a hostile environment, a dog's response will, in many cases, provide the initial warning to the presence of a hostile force if the teams are properly located. In past combat operations, MWD teams often provided warning of attacks early enough to allow RFs time to deploy into advantageous positions and prevent enemy forces from reaching their objectives. MWD teams also have helped to clear protected areas of hostile persons, explosives, and weapons after attacks.

2-27. Area defense

Areas that cannot be covered by static defensive posts because of vegetation, terrain, or some other peculiar feature can be secured by using patrol dog teams. The patrol dog can detect personnel using concealed avenues of approach and provide an early warning to defenders. Each dog team's area of responsibility should be large enough so that the team can move to take advantage of the prevailing wind directions. A fixed sentry position should be established to provide covering fires for each dog team in case the team must withdraw closer to the defensive perimeter after the dog has responded on an attempted hostile probe or penetration.

2-28. Warning and response procedures

Several procedures should be developed for warning friendly forces of a patrol dog's response because circumstances may prevent the use of a radio. Also, different types of responses tailored to fit a variety of potential situations should be developed. For example, it may be desirable to have the dog team follow the response and locate the cause. At other times, combat intelligence may require that the team maintain in the alert position until assistance arrives, or to withdraw to a more advantageous position. Whatever response is used, the handler should not release a dog unless it is necessary to defend:

a. Himself or herself.

b. Other personnel.

c. Protected resources.

2-29. Listening posts, reconnaissance, and combat patrols

a. *Planning factors.* When setting up listening posts or combat patrols, consider the availability and suitability of patrol dogs for the particular mission. The kennelmaster must be briefed early regarding the mission. This will ensure that the most suitable patrol dog team can be selected and the handler can prepare for the mission. The handler should check the dog for any limiting ailments and conduct training rehearsals to become familiar with the mission. The kennelmaster and selected handler(s) must be involved in planning conferences and briefings involving the use of a dog team.

(1) In defensive operations, combat patrols are used to provide early warning, to confirm intelligence information, and detect or deter enemy action. Patrol dog teams greatly enhance the security of reconnaissance and combat patrols.

(2) On combat patrols, a patrol dog works at maximum efficiency for only two or three hours. The team is most effective in uninhabited areas. If a dog frequently responds on friendly forces and is continuously taken off response, the dog soon loses interest and reliability. Therefore, handlers must train to be able to perform these missions. Only the best teams should be selected.

(3) Patrol leaders and members must be briefed on actions to take if a dog handler is seriously wounded or killed. Patrol dogs that have worked closely with patrol members and have developed tolerance for one or more of them, will usually allow one of the patrol members to return it to the kennel area. However, the dog may refuse to allow anyone near its handler, and other handlers may need to be called for help.

b. *Listening posts.* On a listening post, the dog team (along with another soldier) should be positioned in the forward area of the tactical area to reduce distractions to the dog, yet close enough to maintain contact with friendly forces. In selecting a location, consider the primary detection senses of the dog. Whenever possible, MWD team listening posts should be located downwind from any potential enemy position or avenue of approach. Other locations force the dog to rely on its hearing and sight for detection. However, any advance warning the dog gives can be of benefit to friendly forces.

c. *Reconnaissance patrols.* Reconnaissance patrols may obtain information about the number, weaponry, and movements of enemy forces.

(1) Patrol dog teams used with reconnaissance patrols during daylight or darkness help by detecting enemy presence, helping the patrol to avoid discovery, and locating enemy outposts. In the past, some patrol dog teams also have been trained to detect mines and booby traps. When the dog responds, the handler should signal the patrol to halt until the cause of the response can be identified and the patrol can proceed safely.

(2) If a fire fight develops while the patrol dog team is at the point position, the dog team should respond to fire team directions and act as a regular member of the patrol.

(3) Generally, the best locations for dog teams are directly in front of the patrol or on its flanks. Prevailing wind direction should be used to improve the patrol's chances for early warning of enemy forces. The handler must concentrate on the dog to read its response and will not be able to use a weapon rapidly. Therefore, a member of the patrol should be assigned to protect the dog team. If the wind direction is from the rear of the patrol, the dog is forced to rely on sight and sound and may not be as effective.

d. *Combat patrols.* The most common combat patrol using patrol dog teams is the ambush patrol. A dog team should be placed in front of the patrol to minimize distractions, yet close enough to maintain contact with other patrol members. Patrol dogs on ambush patrols must remain silent and not respond aggressively to approaching enemy forces.

2-30. Enemy prisoner of war (EPW) operations

In EPW operations, patrol dog teams are used for camp perimeter

security to guard against escape. The dog's keen sense of sight, smell, and hearing assists the handler and camp authorities in detecting unauthorized activity. Their presence also acts as a deterrent to such activity. The team can be used to guard prisoners while in transit, and assist in the search for escaped prisoners.

2-31. Mobilization and deployment

a. Deployment preparations. All levels of command need to be involved in the deployment preparations for MWD teams. Plans for deployment, and for the actions to be taken after arriving at the deployment destination, must include the following:

- (1) Considerations of equipment requirements.
- (2) Use of field kennels.
- (3) Orientation training (including safety procedures).
- (4) The concepts of operations to be used.

b. Planning for deployment. Deployment plans must include coordination with the supporting military veterinarian, consideration of the expected duration of the deployment, and consideration of the types of facilities which may or may not exist at the deployment destination.

(1) Dogs must receive proper care during deployment and upon arrival at the destination. Care must be taken to be sure the dog does not overheat or freeze, or suffer from lack of food, water, or rest.

(2) Army mobility requirements necessitate that all MWD teams have a shipping crate. The shipping crates, when used to transport dogs even over short distances, simplify handling, loading, and transporting, and give the dogs adequate space and ventilation during shipment. In addition, the shipping crates may be needed for use as temporary kennels at intermediate sites or at the deployment destination. Standard metal dog crates occupy 31 cubic feet.

(3) Water requirements for dogs usually average about 10 gallons a day for each dog team.

(4) Enough dog food must be taken to last 30 days or until resupply can be established. Determination of type dog food and contents of first aid kits (that must go with the dog teams) should be made by the supporting veterinarian. Information on the deployment destination, climate, and terrain help to determine the specific contents of the first aid kits. For example, if dogs will be employed on rough terrain, a "pad toughener" is included in the first aid kit.

c. Equipment used. Required equipment must travel with and arrive with the patrol dog team(s) so they can be fully operational as quickly as possible. The following equipment should be available for dog teams identified for deployment:

- (1) *Dog equipment (one per dog).*
 - (a) Dog handler gear (two sets).
 - (b) Dog food (30-day supply).
 - (c) Water bucket (plus one spare for every five dogs).
 - (d) Feed pans (plus one spare for every five dogs).
 - (e) Shipping crate.
 - (f) Jerry cans, water type (two per day).
 - (g) Poncho (for use with the dog).
- (2) *Personnel equipment (one per handler).*
 - (a) Flashlight.
 - (b) Fatigues (three pair).
 - (c) Combat boots (two pair).
 - (d) Foul weather gear.
 - (e) Shelter half (two).
 - (f) Snake bite kit.
 - (g) Field mess kit.
 - (h) Sleeping bag.
 - (i) Web belt.
 - (j) Rope.
 - (k) Canteens (three).
 - (l) Other equipment as required by unit standard operating procedures (SOPs).
- (3) *Other equipment.*
 - (a) Axes.
 - (b) Shovels and rakes.
 - (c) Copies of AR 190-12, DA Pam 190-12, and other appropriate references.

- (d) Hatchets.
- (e) First aid kit.
- (f) Brooms, mops, brushes, disinfectant.
- (g) Arm protector (attack sleeve).
- (h) 50-gallon trash can.
- (i) Refrigerator for veterinary medical supplies.
- (j) Power generator.
- (k) Other equipment as required by unit SOPs.

d. Field kennels and support facilities. A suitable kennel site must be carefully selected. Before deployment, some possible locations may be selected from a map. However, as soon as possible after arrival, the sites should be inspected to choose the most suitable location.

(1) When selecting a site, consult a veterinarian whenever possible about possible health hazards. Location of the kennel in a congested area may be necessary to protect the kennels from enemy attack. A temporary screen or fence may be needed to block the dog's sight, so the dogs will be able to rest.

(2) When shipping crates are used as temporary kennels, the crate should be turned upside down and raised four to six inches off the ground to allow for adequate drainage and reduce parasite breeding places. Place modified pallets in the crates to prevent the dogs from injuring feet or legs in the crate air holes. In hot climates, place crates under trees, tarpaulin, or plywood to provide shade and ventilation. Spread gravel, if available, around and under the crates to allow for drainage and easy removal of solid waste.

(3) A large tent or prefabricated building can serve as a temporary storage location for equipment, rations, and other supplies. A second tent or building erected at the kennel site to house handlers and the kennelmaster provides the kennel with sufficient manpower for security of the kennel area.

(4) Although conditions around a temporary kennel may never be ideal, a high standard of sanitation is essential to prevent diseases and parasite infections.

e. Orientation training. As soon as possible after arriving at the deployment destination, and while making sure that site security is established, orientation training must begin. Orientation training allows the MWD teams to quickly develop familiarity with their new location and to quickly develop an understanding of their missions. The kennelmaster needs to evaluate or reevaluate the degree of skill of each of the MWD teams so they are fully prepared to support the deployed force. Initial evaluation and training should consist primarily of field problems, attack, search, reattack, tracking, and basic obedience. The remainder of the orientation period should be devoted to training on patrol, squad, and fire team exercises. Field problems should include combat and reconnaissance patrols, outpost, listening post, ambush patrol, sweep deployment, and tracking. Training should also include the handler firing his assigned weapon while maintaining control of the dog. Some training should be done at dusk, and then in darkness, so that the handler may see (for safety), and the dog may adjust to the noise and flash of weapons. Most MWD team missions can be expected to occur at night.

Section V

Employment of Narcotics Detector Dogs

2-32. The drug problem

The abuse of drugs by military personnel, their family members, and civilians, who may enter military areas for work, business, or recreation, presents a continuing problem for the Army. Every effort must be made to reduce the potential danger to society and particularly to the military community from those who sell or abuse drugs.

2-33. The narcotics detector dog

One of the most efficient means of detecting the possession or transportation of dangerous drug contraband is the well-trained narcotics detector dog. The narcotics detector dog is trained through a program of practice and reward to recognize the scent of certain drugs, such as marihuana, hashish, heroin, cocaine, and other related substances. When the narcotics detector dog locates any of these

substances, the dog will alert its handler. Most of the Army's narcotics detector dogs are also patrol dog qualified and are commonly referred to as patrol/narcotics detector dogs. Some large and small breed narcotics detector dogs are not patrol trained. They are called narcotics/contraband detector dogs or contraband dogs. (These dogs are being phased out of the inventory through attrition and are being replaced by the patrol/narcotics detector dog.) Regardless of the label, all these dogs perform a valuable service by helping to rid the military community of illegal drugs and the problems associated with drug and controlled substance abuse.

2-34. Legal aspects—narcotics detector dog teams

There are several legal considerations in using the narcotics detector dog since the apprehension and possible criminal prosecution of offenders may be involved.

a. The use of narcotics detector dogs during an inspection must be authorized by the installation commander or a commander having control over the personnel and property to be inspected. This applies to all inspections, including buildings, vehicles, aircraft, and so forth.

b. If, during the course of an inspection, a narcotics detector dog responds, the dog's actions may be sufficient in the case of persons to justify apprehension and a search. In the case of property, the response may be sufficient to establish probable cause to obtain authorization to search. In order to establish probable cause, a description of the dog's conduct, training, and experience must be conveyed to the authorizing official to permit that person to assess the reliability of the dog. To ensure that this information is available, the following will be maintained for each detector dog:

(1) A general record of the training and experience of the narcotics detector dog team is maintained on DA Form 2807-R (Military Working Dog Training and Utilization Record). (See para 3-34.) This form is prescribed in AR 190-12.

(2) A detailed record of training and experience showing the numbers of training and actual narcotics detection operations in which the narcotics detector dog team has been involved and the dog's performance record is maintained on DA Form 3992-R (Narcotics or Explosives Detector Dog Training and Utilization Record). (See para 3-35.) This form is prescribed in AR 190-12.

c. A demonstration of the narcotics detector dog's proficiency may be required. It should include training aid plants of each type of substance the dog has been trained to detect and a test of the dog's ability to respond on places where a drug has been recently concealed and then removed. This demonstration also may help establish the narcotics detector dog team as a reliable source of information for the commander. The test of the dog's ability to detect recently abandoned hiding places for the drugs or clothes that have the smell of drugs is important because it helps to explain the dog's response when no drug can be found, and reinforces the dog team's credibility.

d. The records described in para b, above, should be carried by the handler when the narcotics detector dog team is TDY for narcotics detection operations so the records are available to appropriate commanders at the TDY site. Commanders at the site should review these records and observe a demonstration before authorizing drug detection operations.

e. Commanders and supervisors should work closely with the command SJA to ensure that drug detection operations achieve objectives and comply with legal requirements. Court decisions and changes to existing laws and policy frequently alter the methods and procedures which must be followed for proper narcotics detection programs. Handlers must learn and apply the rules of evidence, search and seizure, and the procedures for collecting and preserving evidence.

f. Although the dog's training and utilization record and demonstrated proficiency are important to establishing credibility, omissions or irregularities will not necessarily prevent a valid authorization to search. As a basis for authorizing a search, an officer otherwise eligible to do so must be reasonably satisfied that the dog is reliable. This belief must be based on reasonable grounds.

Those grounds may be reviewed in court. Whether information is enough to warrant faith in the dog's reliability is a matter of judgment based on facts rather than on compliance with the recommended procedures.

2-35. Certification and decertification

a. After the initial certification of a narcotics detector dog at the 341st Military Working Dog Training Squadron, recertification is required under any of the following circumstances:

(1) When a new handler is assigned to the dog. Any recertification with a new handler automatically nullifies any certification with any other handler. Dog team assignments always will be made consistent with the principle of one dog—one handler, and only certified narcotics detector dog handlers may be assigned to handle narcotics detector dogs. Only one handler will be assigned to each dog.

(2) When a dog team's proficiency training has been interrupted for 30 or more consecutive days for any reason, full recertification of the team by a certification authority (AR 190-12) is required.

(3) When a narcotics detector dog team fails to maintain the minimum proficiency standard of 90 percent or better detection for three or more consecutive months.

(4) Full or partial recertification may be required any time the installation commander, PM, security officer, or MP commander has reason to doubt the team's reliability.

b. To maintain the narcotics detector dog's proficiency during a handler's extended absence, at least four hours of proficiency training must be conducted each week. This is performed by the kennelmaster, a dog trainer, or a qualified narcotics detector dog handler.

c. If a narcotics dog is not able to continue detector duties, fails recertification, and retraining fails to correct the situation within 45 days, the circumstances will be thoroughly documented. Documentation will include the following:

(1) The apparent cause of failure.

(2) A statement from the supporting veterinarian identifying any physical or medical conditions which may be contributing to or causing the failure.

(3) A summary statement of retraining efforts to include MACOM or Army training assistance team's efforts to correct the deficiency.

d. The complete documentation package will be submitted through the appropriate MACOM to HQDA, ODCSOPS (DAMO-ODL-S), requesting further instructions. ODCSOPS (DAMO-ODL-S) will review and forward the request to the 341st Military Working Dog Training Squadron for appropriate disposition instructions.

e. If the dog is permanently decertified, the unit will report decertification by letter to the 341st Military Working Dog Training Squadron so the dog's NSN can be changed. Unit records also will be changed.

(1) If the unit where the dog is assigned can use the dog as a patrol dog, the unit should reassign the dog to a patrol dog handler. The unit should then request a replacement narcotics detector dog by submitting a MILSTRIP requisition according to AR 190-12. Any outstanding MILSTRIP requisition for a patrol dog will be canceled.

(2) If the unit has no patrol dog requirement, the unit will report the dog as excess to requirements in accordance with AR 190-12. A replacement narcotics detector dog will be requisitioned in accordance with AR 190-12.

Section VI

Employment of Explosives Detector Dogs

2-36. The need for explosives detector dogs

Few other criminal acts create such concern and fear in the hearts of a nation's citizens as a series of bombings. It is no coincidence that organized crime and terrorist groups routinely utilize explosive materials as a means of achieving their violent goals. Whether the objective is murder, intimidation, extortion, or governmental disruption, the bomb is a favorite and very effective weapon of the

criminal element. One of the most effective countermeasures to the use of explosives is the deterrent value and the detection capabilities of the EDD team.

2-37. The explosives detector dog team

EDD teams fill three distinct roles in MP operations (in addition to the routine use of patrol dog teams.)

a. Deterrent. Public knowledge that EDD teams are assigned to and are used at an installation acts as a deterrent to persons who may try to use explosives illegally on the installation. The knowledge that explosives can be detected by EDDs at installation gates or in places where explosives have been hidden, can prevent a person from attempting to bring explosives on to an installation.

b. Search. The most common use of EDD teams, and probably the most important, is to search areas of buildings against which a bomb threat has been made. A well-trained EDD team can conduct a significantly more effective search of any area or facility in far shorter time than almost any number of people. Using EDD teams also helps to reduce the potential risk to persons who would otherwise have to do the search without benefit of the dog's superior sense of smell.

c. Investigation. EDD teams can be useful in many investigations involving almost any type of weapon, ammunition, or explosives. They are particularly useful if there is a need to locate one or more items which may have been hidden in an area.

2-38. Legal aspects—explosives detector dog teams

The most frequent tasks performed by EDD teams are in response to bomb threats against military or civilian resources. The general requirements for providing EDD team support to civil authorities are stated in AR 190-12. However, many units also are using EDD teams in random searches at entry control points, for inspection of troop and dependent housing areas, for checking aircraft and aircraft areas, for sensitive or high-value equipment storage area checks, or for checks of mail, baggage, freight shipments, and so forth. The expanded use of EDD for these functions presents many of the same legal problems for explosives searches that are characteristic of narcotics detector dog team searches for drugs. Whenever the operational situation may result in the apprehension and possible criminal prosecution of offenders, the procedural and record-keeping requirements defined in para 2-33 for narcotics detector dogs apply to EDDs. However, compliance with procedural requirements should never be an obstacle to protecting life and property. The EDD handler should always be prepared to establish the EDD team's credibility with training, utilization, and proficiency records, and/or a demonstration.

2-39. Certification and decertification

a. EDDs and handlers initially are certified upon successful completion of training by the 341st Military Working Dog Training Squadron. The continuing effectiveness of EDDs depends on continual reinforcement of the detection ability through proficiency training. Proficiency training is mandatory, and an EDD team should receive at least four hours training each week. The minimum standard to maintain certification as an EDD team is 95 percent or better detection. Failure to maintain an average proficiency that meets or exceeds the minimum standard for three or more consecutive months will result in automatic decertification of the MWD team. The team may be recertified only after retraining and consistent demonstration of the minimum standard of proficiency to an appointed certification authority or to the instructor staff of the 341st Military Working Dog Training Squadron.

b. After the initial certification of an EDD and handler at the 341st Military Working Dog Training Squadron, recertification of the EDD is required under any of the following circumstances:

(1) When a new handler is assigned to the dog. Any recertification with a new handler automatically nullifies any certification of the dog with any other handler. Dog team assignments always will be made consistent with the principle of one dog—one handler.

Only certified EDD handlers may be assigned to handle EDDs. Only one handler will be assigned to each dog.

(2) When a dog team's proficiency training has been interrupted for 30 or more consecutive days for any reason, full recertification of the team is required.

(3) When an EDD team fails to maintain the minimum proficiency standard of 95 percent or better detection for three or more consecutive months.

(4) Full or partial recertification may be required any time the installation commander, PM, security officer, or MP commander has reason to doubt the team's reliability.

c. To maintain the EDDs proficiency during a handler's extended absence, at least four hours of proficiency training (in addition to four hours of patrol training) for the dog must be conducted each week by the kennelmaster, a dog trainer, or a qualified EDD handler.

d. If an EDD is not able to continue detector duties for any reason, or fails recertification, and concentrated retraining fails to correct the situation within 45 days, the circumstances will be thoroughly documented. Documentation will include:

(1) The apparent cause of failure.

(2) A statement from the supporting veterinarian identifying any physical or medical conditions which may cause the failure.

(3) A summary statement of retraining efforts to include MACOM or Army training assistance teams' efforts to correct the deficiency.

e. The complete documentation package will be submitted through the appropriate MACOM to HQDA, ODCSOPS (DAMO-ODL-S), requesting further instructions. Based on the documentation package, certification authority recommendations and status of Army-wide MWD program, the HQDA, ODCSOPS (DAMO-ODL-S), will review and forward to the 341st Military Working Dog Training Squadron who will advise:

(1) To continue retraining efforts.

(2) To decertify the dog.

(3) To ship the dog to the 341st Military Working Dog Training Squadron for evaluation.

f. If the dog is permanently decertified, the unit will report the matter by letter to the 341st Military Working Dog Training Squadron so that the dog's NSN can be changed. Unit property records will also be changed.

(1) If the unit where the dog is assigned can use the dog as a patrol dog, the unit should reassign the dog to a patrol dog handler and request a replacement EDD by submitting a MILSTRIP requisition as prescribed by AR 190-12. Any outstanding MILSTRIP requisition for a patrol dog will be cancelled.

(2) If the unit has no patrol dog requirement, the unit will report the dog as excess to requirements in accordance with AR 190-12. A replacement EDD will be requisitioned as prescribed by AR 190-12.

2-40. Bomb threat planning

Army guidance on bomb threat planning and procedures is contained in Training Circular (TC) 19-5. Each unit or activity on an installation should have a bomb threat search and evacuation plan that describes the actions taken when a bomb threat is received. When EDD teams are available, the use of these teams should be included in these plans.

2-41. Response to bomb threats

a. The procedures provided here as guidance should be used during both actual bomb threats and training rehearsals for bomb threats. Training on bomb threat responses can:

(1) Be used to enhance the proficiency of EDD teams.

(2) Train security and unit personnel on actions which can and cannot be taken when searching for explosive devices.

(3) Educate security and unit personnel on search precautions when the EDD team is not available.

b. The type of threat received and local policy determine the initial actions to be taken in response to a bomb threat. Evacuation

of the area may or may not be ordered by the responsible commander. The area must be evacuated if the EDD team is being used to perform the initial search. The advantage of using the EDD team to conduct the first search is that the EDD handler has specialized knowledge of explosives and explosive devices and search techniques. The area must be evacuated to minimize the distractions to the EDD team and to reduce the risk to area occupants in the event of an explosives detonation. Whether the building is evacuated or not, a complete and thorough search of the area must be made by residents or users of the facility, with the assistance of safety and security personnel (MP, fire fighters, explosive ordnance disposal (EOD) teams, and others as prescribed by local policy), as appropriate. In conducting an explosives search with an EDD team, the following basic precautions should be taken in addition to the search procedures described in TC 19-5:

(1) The EDD handler should determine the number of safety and security personnel who will be allowed to accompany the EDD team into the area to be searched. Each of the personnel selected should be briefed on the actions to be taken during the search and in the event the dog responds.

(2) The EDD handler and any personnel designated to accompany the team during the search should be provided protective equipment and other items necessary to conduct a safe and thorough search. These would include flak vests, special flashlights such as the ones issued for use in coal mines, and inspection mirrors.

(3) The search should be as thorough as possible. However, nothing should be moved or disturbed unless it can be positively ruled out as an explosive device. Improvised explosive devices (IED) or homemade bombs, can be triggered in an almost infinite number of ways. Methods include lifting, tilting, pushing, pulling, or other movements, as well as sound, light, heat, and by remote control. IEDs can be disguised to look like anything from a desk pen, telephone, coffee pot, or trash can to a chair, table, door, fire extinguisher, movie projector, or briefcase. No object can be automatically ruled out. The EDD team should inspect every item that cannot be positively identified.

(4) Searchers should not change or move anything during the search. If lights or other electrical or mechanical appliances are on, leave them on; if they are off, leave them off until a thorough search is completed. An IED can be triggered by the application or removal of light or power.

(5) After the EDD search team is able to clear an area, section, or building, persons assigned to the area should also search, when it is possible to enter the area without distracting the EDD. Persons assigned to the area or building are most familiar with the contents and are probably best qualified to identify equipment which is out of place or which does not belong, as well as areas where a potential explosive device could be successfully hidden. Special care should be taken to search areas accessible to the general public such as the building exterior, entrances, corridors, stairways, storage and utility closets, and rest rooms. Be particularly cautious of and report any object that appears out of place or unusual.

(6) Searches of locked rooms can usually be left until open room searches have been completed. If, however, examination of the door and lock reveals evidence of forced entry, the room should be searched immediately. Before entering such a room, carefully examine the door for any indication that the door is wired as a triggering device.

(7) If the person making the bomb threat gave a specific time for the bomb to go off, the area should be evacuated of all personnel, to include search personnel, during an appropriate time frame surrounding the threatened time of detonation. All personnel being evacuated should be moved to an area at least 300 feet from the building or area in which the explosive device is allegedly planted. Whenever possible, personnel should be kept clear of an evacuated area for at least one hour past the threatened detonation time.

(8) During the conduct of the search, training aids such as C-4 plastic explosive, military dynamite, or smokeless powder should be planted periodically so the dog can find them. This helps the dog to maintain interest in the search. Training aids should only be planted

in areas that already have been searched by the EDD team. During an actual search, the EDD should be allowed to find a training aid every 15 to 30 minutes to break the search routine and reward the dog for its perseverance. A skilled EDD handler will know the proper interval between training aid finds to maintain the dog's interest.

2-42. Positive responses

When the EDD shows increased interest in or responds on an object, the handler must reward the dog and report the response to the appropriate commander or supervisor. The handler should not touch or retrieve the suspected object during an actual search or training exercise, nor should the handler allow the dog to scratch or paw at the object or pick it up in its mouth. If the dog responds during an actual search, immediately notify EOD personnel of the location of the response. EOD will dispose of any suspect devices or objects. Neither the MPs nor any other person should ever attempt to move, open, or tamper with any object suspected of being an explosive device unless they have been specifically trained to do so.

2-43. Alternative immediate action

A situation may arise when EOD personnel are either not available or cannot respond immediately and, because of the location of the explosive device, immediate action must be taken to neutralize or limit the effects of the explosion. In some cases, barricades of sandbags, mattresses, or other nonfragmenting material may be erected around the device to partially contain or redirect the blast. Such efforts, however, greatly increase the exposure and attendant risk of personnel to an explosion. Therefore, any immediate protective action should only be taken in cases of extreme necessity. Regardless of the circumstances, the area should always be evacuated of all personnel in advance of any time of threatened detonation. Only EOD personnel should be allowed to reenter the area to clear the explosives device.

Section VII Reporting Use of Military Working Dogs

2-44. Incident reporting

The MP has known for several years, now, the valuable contribution made by MWD teams to the detection, investigation, or solving of several types of criminal activity. However, the ability to identify or document those completed cases or incidents that could both clearly identify how we use dog teams as well as demonstrate their value to MP and Army missions has been limited. As a result, supplementary crime codes have been developed for entry on DA Form 3975 (Military Police Report). The supplementary codes identify the incidents reported on MP reports which have involved the use of patrol dog teams, narcotics detector dog teams, and/or EDD teams. There are separate codes for each type of dog team as well as separate codes for detection of marihuana, hashish, heroin, and cocaine by narcotics detector dog teams. These supplementary codes are prescribed in AR 190-45.

2-44.1.

Not used.

Chapter 3 Training

Section I Proficiency Training

3-1. General

a. The purpose of this chapter is to provide performance standards for the MWD team. This chapter is not intended to serve as a training manual, although some training methods will be presented. Specifically, this chapter:

- (1) Describes how to conduct proficiency training.

(2) Identifies the tasks that dogs and handlers are school-trained to do.

(3) Prescribes the tasks that MWD teams must be taught to be operationally proficient.

(4) Prescribes the minimum standards for each of the tasks.

(5) Explains the methods to be used to evaluate the proficiency of an MWD team.

b. Dogs and handlers who have been certified by the 341st Military Working Dog Training Squadron have demonstrated the proficiency level required for certification (that is, explosive detector has met 95 percent detection standard and narcotics detector has met 90 percent standard). This is not an assurance of their ability to perform these tasks to the same degree of proficiency in the working environment. Therefore, each MWD team assigned to a unit or installation should be evaluated locally on each of the tasks and on their general ability to perform MP missions as a team in the working environment. Additional training will normally be necessary before new MWDs and handlers, as a team, can consistently achieve all of the performance standards and perform the full range of MP missions.

c. In addition to the initial evaluation, each MWD team should be evaluated periodically by the PM or unit commander to be sure proficiency is maintained. All MWD team evaluations, whether initial or routine, must be done in an environment that simulates the working environment as closely as possible. The purpose of the evaluation must be to identify deficiencies and the corrective measures necessary to raise the MWD team's proficiency level to at least the minimum standards. An MWD team should be able to consistently meet at least minimum proficiency standards before being employed for operational MP missions. A written record of this evaluation will be maintained with the dog's training record.

3-2. The need for training

MWD teams need continual proficiency training to maintain their skills. The team's normal day-to-day duties do not provide the necessary practice in all of the skills a team has been trained to do. Without frequent reward reinforcement for performing a task correctly, the dog will soon lose interest in performing the task. Likewise, the handler who does not practice his or her skill loses the ability to "read" the dog's responses. Proficiency training, then, maintains all of the dog team's basic skills and improves the team's performance.

3-3. The principles of training

a. There is no magic formula or singular method for training MWDs. Each dog has unique characteristics and training must be adapted so that a consistently correct response is achieved. The basic principle of dog training is that the dog is taught to associate a pleasant event with the correct performance of the required task. This association is brought about in training by applying knowledge, patience, repetition, praise, reward, and correction.

(1) When training the dog, the handler must apply all the knowledge he or she gained about dog training while being trained as a handler at the school, as well as drawing on the knowledge of other handlers, kennelmasters, and dog trainers. A handler's education must not stop when leaving the handler school. The handler must take advantage of every opportunity available to learn more about handling and training dogs.

(2) Patience is the steadiness, endurance, or perseverance necessary to help the dog develop the skill to perform a task correctly. A handler must remain calm and self-controlled while working with the dog on each task.

(3) Repetition is practicing the same exercise or task several times until the desired or correct response is achieved consistently.

(4) Praise is probably the most important reinforcement. Praise must be given at the precise moment the dog makes the desired or correct response. Praise encourages the dog to perform a task correctly. Praising a dog too early or too late may only confuse the dog about the nature of the task the handler is trying to train the dog to do.

(5) A reward is a specific object, such as food, a ball, or other favorite play object, that is used to recognize the dog for successful and proper completion of a task. To maintain the strength or value of the reward, the following principles apply:

(a) The dog must never get too much of the reward so that it no longer wants the reward.

(b) The reward must be given to the dog only when it has made the required response.

(c) The reward must be given to the dog immediately after the dog makes the required response. If a food reward system is used, only enough should be given to the dog so it realizes it has been rewarded. Similarly, if the dog is rewarded with a ball or other play object, the dog should be allowed to keep it only briefly to realize it has been rewarded and so the dog does not become bored with the reward.

b. The response the dog will be trained to make when it performs detection tasks correctly is determined during initial training of the dog at the school. Some dogs will have been taught to make an aggressive response such as biting or scratching at a hiding place. Other dogs will have been taught a passive response such as barking or sitting. The school now teaches only the passive response.

c. An important element for training success is to train the dog to adapt to the various areas and objects around which it will be required to work. This lessens the effect that strange odors and surroundings may have on the dog and helps the dog to concentrate on the desired task. For this reason, the real working environment offers the best training ground. Areas that offer excellent training opportunities without exposing the MWD team in training to real situations include the following:

(1) Theaters which have been vacated at the end of a movie or training class.

(2) Commercial facilities just after close of business.

(3) MP unit areas anytime.

3-4. Where to train

a. Working environment. Much of the required proficiency training for an MWD team can and should be conducted in the working environment or in a similar one. Handlers and kennelmasters can use the handler's normal tour of MP duty to conduct training exercises that closely simulate the actual tasks (such as scouting, detection, and building search) that the MWD team may be required to do. Training scenarios can be designed to include concurrent training in several different tasks thus developing the team's ability to accomplish the operational mission. For example, a situation can be set up that allows the MWD team to discover an unsecured building while on walking patrol. The handler must request a backup patrol, secure the building area until the backup patrol arrives, enter and search the building, find one suspect who attempts to escape, pursue the suspect by sight, sound and/or scent, then attack and apprehend the suspect and escort him or her back to the building. This exercise provides realistic training in several tasks, to include the proper application of necessary force to apprehend a suspect. The handler must remember to give the necessary warnings to the suspect, as well as consciously applying the use of force principles (that is, minimum necessary force) before releasing the patrol dog to attack. This exercise could require that the backup MP patrol accomplish the apprehension rather than allowing the handler to release the dog. This aspect of the training exercise helps MWD teams and regular MP patrols develop their knowledge about how to work together.

b. Training area. Some training may be best conducted in a training area. Before going on duty, the handler should exercise the dog moderately, just as an athlete would warm up before an event. This pre-duty exercise is an ideal time for obedience exercises, on- and off-leash, and for exercise on the obedience course obstacles. Nearly all off-leash attack training should be conducted in the training area, especially if the kennelmaster or handler is trying to correct a control problem.

c. Obedience course. The obedience course exposes the patrol dog to various obstacles that simulate walls, open windows, tunnels, ramps, or steps. The exposure of the dog to these obstacles reduces the amount of time required to adapt dogs to the environment. The

dog learns to negotiate each of the obstacles. Then, when confronted with a similar obstacle in the working environment it is not deterred from completing its mission. The obedience course also develops the handler's ability to control the dog's behavior both on- and off-leash. The obedience course is not a substitute for exercise. A dog should never be required to negotiate the obedience course until it has been warmed up by proper exercise.

(1) The obstacles should be run in sequence as shown in figure 3-1. This sequence allows the dog to progress from least difficult to most difficult. The critical obstacles are adjustable so that the dog can be trained to accomplish the maximum height a little at a time.

(2) Veterinarians may determine that due to a particular medical or physical condition, a dog should not negotiate certain obstacles or the obedience course. Alternative exercises may then be prescribed.

(3) The obedience course obstacles are painted with an exterior paint, preferably white. The top surface of the steps, A-frame, and the dog walk are painted with a nonskid paint.

3-5. When to train

a. Since dogs, like people, have different levels of capability, characteristics, and behavior patterns, the amount of time that must be spent training to guarantee proficiency will vary. The general rule is that at least four hours of proficiency training each week is necessary to maintain minimum standards for each dog. The ability of the dog to maintain proficiency on separate tasks will also vary depending on the nature and complexity of the task. Kennelmasters and handlers must learn how long a dog can go before it begins to lose proficiency on various tasks. The most important factor is the length of time between task performances, not the amount of time spent on doing the task. Until the optimum training cycle is worked out, have the dog perform each task at least once each 5- or 6-day period. If the dog correctly performs without any particular problems, try increasing the interval. If the dog performs a task poorly, decrease the interval. Once the best training cycle (frequency of repetition of a task) has been determined, set up a training schedule that keeps the dog at peak proficiency. Keep the schedule in the dog's training record and stick to it!

b. When public or business facilities are used for training exercises, the training should begin as soon as possible after the facilities have been closed so that the lingering human scents provide a realistic working or training environment. Normally, a building would be evacuated for an explosives search. Patrol dogs and narcotics detector dogs should be able to work in buildings where there may be other persons present. Therefore, it may not always be necessary to totally vacate a building or area when training MWD teams.

3-6. How to conduct proficiency training

Training exercises that closely simulate actual performance requirements are the best form of training. Stereotyped exercises lead to stereotyped results with little training value. Repeatedly using the same exercise scenario makes it easier for the trainer; however, it also conditions the dog to anticipate the actions required and the dog will soon begin acting without waiting for commands from the handler. If this situation is allowed to continue, more serious control problems will result.

a. *Patrol dog team training.* To control the total amount of time spent on training and the frequency as much as possible, varied training exercises should be developed. Training should be tailored with emphasis on the dog's or handler's weaknesses. For example, if the dog team is weak in building searches, several training exercises should require the team to search a building (not the same building). The team should track a suspect to the building. As a variation, have the team detect a suspect near a building and chase the suspect into the building. Each training cycle, concentrate on the critical tasks as defined in sections II, III, and IV, below. Remember—never let training become routine or stereotyped.

b. *Detector dog training.* In addition to the proficiency training in

patrol dog tasks, detector dogs require continued training in detection of narcotics (drugs) or explosives. Well-conducted and documented training are both critical to the maintenance of team certification and to the establishment of probable cause for a search based upon a detector dog's number of correct responses. Although there are several differences in the training requirements for drugs or explosives detection, proficiency training scenarios for both types of detector dogs must be varied to avoid conditioning the dogs to a repetitious training pattern. The following factors can and should be varied for each training exercise or proficiency evaluation:

(1) *The general training exercise area.* The places selected should be at random and should be different for each exercise. (This indicates if the dog responds to locations rather than the odor of the substance.)

(2) *The number of training aids planted.* Some exercises should involve no training aid plants. (This indicates if the dog has been trained using the same number of training aid plants each time and identifies false responding by the dog, cues made by the handler that cause false responding, and guessing by the handler.)

(3) *The specific locations of the training aids in the area being used for training.* The training aids should not be visible to the dog or handler and the hiding places should vary. (This indicates if the handler is cuing the dog or if the dog is cuing on places rather than the odor.)

(4) *The amount of explosives or drugs used in the training aid plant.* (This indicates if the dog responds to various odor concentrations.)

(5) *The type of explosives or drugs used.* To maintain proficiency includes maintaining detection proficiency for each of the substances the dog has been trained to detect.

(6) *The time of day or night of the training.* (This indicates whether the dog has been trained to work anytime or will only work at specific times.)

(7) *The type of training aid container.* For example, training aids may be packaged in cloth, plastic, metal, paper, cardboard, glass, or wood containers. (This indicates if the dog responds to the odor of the container rather than the substance.)

(8) *The type of distraction material planted with the training aid.* The training aids should always be uncontaminated and fresh. Distraction materials may be planted adjacent to the training aid. (This indicates if the dog responds to the odor of the distraction rather than the training aid.)

(9) *The length of time the training aid is left in place before the detector dog team search.* Varying the time will affect the extent of odor dispersion and the longer a training aid is in place the easier it is for the dog to detect.

(10) *The person used to handle and/or plant the training aid.* (This indicates whether the dog is responding to the odor of a specific person rather than the odor of the substance.)

(11) *The height above or below the floor level of the training aid plants.* (Matches most real world situations and forces the team to work scent cones and follow air current patterns to detect training aids.)

(12) *The size of the room or area in which the training aids are planted, such as an auditorium, an office, a closet, a desk drawer.* (Improves the detector dog team's use of search patterns and the ability of the team to work scent cones and follow air currents to detect narcotics and explosives.)

(13) *Storage location of the training aids.* Training aids stored together can cross-contaminate or become contaminated with the odors of the storage location. Training aids should be isolated in vapor proof containers when stored, if possible.

3-7. Decoys

a. One of the most important roles to be played in proficiency training and proficiency evaluation is that of the decoy. One or more decoys are essential. The decoy is the person used as the primary adversary role player for training and evaluating the MWD team. The decoy may be a suspect, a subject, an attacker, an agitator, a drunk, an escapee, an enemy or any of a number of other "persons" a dog team may expect to encounter while performing MP duties. A

decoy may also be neutral or an ally, such as another MP, a supervisor, a lost juvenile, or an innocent person passing through an identification check.

b. To maintain realism, the decoy should not be familiar to the patrol dog. The less a decoy knows about dog training, the more realistic the decoy's behavior will be. The one thing that a decoy must be taught is how to handle the arm protector (or wrap) for self-protection when the dog attacks. The sleeve or wrap used should be a hidden sleeve rather than the full, heavy padded sleeve. The hidden sleeve can be concealed under a sweater or field jacket in order to achieve more realistic conditions for training the dog.

c. Both male and female personnel should be selected as decoys and both the military uniform and civilian clothing should be worn to improve realism. Military and civilian clothing obtained from the installation property disposal office is suitable for this activity.

Section II

Military Working Dog Team Proficiency Standards

3-8. Proficiency standards

a. The proficiency standards identified in section III, below, apply to all MWDs which are certified as patrol dogs at the dog school. The standards in section III describe how a task must be performed in the school environment for certification. As evaluation criteria, the correct performance of the required tasks serves to verify that the handler understands control of the patrol dog. In the operational working environment, the handler will usually need to adjust commands to deal with situations individually. For example, in a STAND-OFF, the handler may prefer to command DOWN or SIT rather than HEEL. This can avoid giving a suspect an opportunity to escape or to attack the dog or handler while the dog is returning to the HEEL position.

b. The proficiency standards identified in section IV, below, apply to all patrol dogs. These standards must be achieved within six months of team assignment to a unit or installation. They must be maintained for retention of certification as a patrol dog.

3-9. Degrees of criticality

To strengthen the usefulness of the proficiency evaluation of MWD teams and to rank corrective training efforts, the proficiency standards are assigned varying degrees of criticality, depending on their relative importance to the MP mission.

a. *Critical.* A task which is not performed consistently to at least the minimum standard seriously degrades the effectiveness of the MWD team. Dogs that fail to meet or exceed the minimum standards for these tasks for three consecutive days are considered unreliable. Unless there are known reasons for failures, the MWD team should begin immediate and extensive corrective training.

b. *Semi-critical.* Tasks that are done correctly provide a higher level of confidence in the dog team. Therefore, the team may be employed in a broader range of MP duties. Overall effectiveness is not degraded substantially by failure to perform a semi-critical task; however, corrective training must be applied to eliminate the deficiency.

c. *Noncritical.* Tracking is the only noncritical task for which patrol dogs are trained. Although tracking is a valuable skill for the patrol dog team, improper performance of the task does not degrade the overall effectiveness of the patrol dog team to perform its MP mission. Tracking also is identified as noncritical because not all patrol dogs have tracking potential. Normally, a patrol dog with tracking potential will be identified while still at the school at Lackland AFB, TX.

Section III

Patrol Dog School Certification Requirements

3-10. Obedience commands

On command from the handler, the patrol dog must execute the commands of SIT, DOWN, HEEL, and STAY. These commands must be executed when the dog is located at the handler's side and

when the handler is positioned at least 10 feet away from the dog. Only one physical correction per four commands is allowed. The command STAY is rated critical due to its importance to controlled aggression and performance. The commands SIT, DOWN, and HEEL are rated semi-critical.

3-11. Obedience course (semi-critical)

The dog must be able to negotiate the obedience course at a moderate pace, on-leash, by command of its handler. This task is rated semi-critical. The obedience course and proper sequence of the obstacles (numbered 1 through 11) is shown in figure 3-1.

a. *Task one (barrels one, two, three, and tunnel).* On command, the dog will walk or crawl through the barrels of various lengths and the tunnel, immediately coming to the heel or sit position when each part of the task is completed.

b. *Task two (steps).* On command, the dog will climb up, then down the step obstacle, and immediately come to the heel and sit position when the task is completed.

c. *Task three (jumps one, two, and three).* On command, the dog will leap jump one at the 24-inch level, jump two at the 30-inch level, and jump three at the 36-inch level. The dog will come immediately to the heel or sit position after completing the task.

d. *Task four (window).* On command, the dog will jump up and through the window opening at a height of 36 inches, and immediately come to the heel or sit position on the other side of the obstacle.

e. *Task five (A-frame).* On command, the dog will scale the entire length of the A-frame in the full raised position, up and down, and immediately come to the proper heel or sit position.

f. *Task six (dog walk).* On command, the dog will climb and walk the entire length of the dog walk, and immediately come to the heel or sit position.

3-12. Controlled aggression

a. *False run (critical).* On the command STAY, the dog must remain in the heel or sit position, off-leash, and not attack when approached by a person. To evaluate, a person wearing an arm protector, starting from a position at least 40 feet away from the dog, approaches the dog to a distance of no closer than four feet from the dog, and then returns to the starting position. The arm protector must not touch the dog or be used to provoke the dog to respond incorrectly. This task is rated critical.

b. *Attack (critical).* The patrol dog must stay in the heel or sit position, off-leash, and attack only on the command GET HIM. The dog must leave the handler's side and attack a person wearing an arm protector. The person must be positioned at least 40 feet away from the dog team. The dog must complete the attack, bite, and hold the arm protector for at least 15 seconds, and release on the command OUT. This task is rated critical.

c. *Search and attack (critical).* The dog must, on the command STAY, remain in the down or sit position while the handler searches a person. If there is any attempt to escape or if the person initiates any hostile act against the handler or the dog, the dog must attack without command and hold the person for at least 15 seconds. After the search, the handler moves to a position about two feet to the right and 10 feet to the rear of the person, so the person is positioned between the dog and the handler. Then, facing the dog, the handler commands the dog to HEEL. The dog must move to the HEEL position next to this handler without attacking the person. The person must not touch the dog or attempt to provoke the dog to attack. This task is rated critical.

d. *Stand-off (semi-critical).* The correct response for this task is for the dog to cease pursuit of an agitator on the command OUT, then on the command of HEEL return to the handler. During school training, the dog may bite or nip at the agitator, but the dog must respond to verbal correction and return to the HEEL position on command. This task is rated semi-critical.

e. *Escort (semi-critical).* With the dog in the heel position, the handler and dog escort the person for a distance of at least 10

meters. The dog must stay in the heel position, off-leash, and not attack. This task is rated semi-critical.

3-13. Building search (critical)

The patrol dog must find one person in a building and show the handler the location of the person. The dog also must show proficiency in attacking a person who tries to escape or who tries to harm the handler or the dog. For school certification, the dog must be on-leash. This task is rated critical.

3-14. Small arms fire (critical)

The patrol dog must not be deterred from attacking during gunfire. This task is rated critical.

3-15. Scouting or patrolling (critical)

The patrol dog must be able to detect a person by scent, sound, and sight. This task is rated critical. The following tasks must be accomplished to demonstrate proficiency in scouting or patrolling:

- a. Detect and respond to the odor or scent of a person who is hidden 50 meters upwind and follow the odor or scent to the person's location.
- b. Detect and respond to a sound made by a person 100 feet downwind and follow this sound to the source.
- c. Visually detect and respond to a person in view 100 feet downwind and pursue the person on command.
- d. The patrol dog must demonstrate proficiency in pursuit and attack during this detection work.

3-16. Vehicle patrol (semi-critical)

The patrol dog must ride quietly and calmly inside a vehicle with the handler. The patrol dog must not be aggressive towards passengers or the driver. The driver may or may not be the handler.

3-17. Tracking (noncritical)

Patrol dogs which demonstrate a potential for tracking are identified at the dog school. This information is recorded on DD Form 1834 (Military Working Dog Service Record) and is given to the gaining unit or installation.

Section IV

Patrol Dog Team Postgraduation Certification Requirements

3-18. Certification standards

After a patrol dog team completes formal training and is assigned to an organization, the patrol dog's proficiency is increased through unit team training. This section prescribes the minimum proficiency standards which each patrol dog team must meet within seven months after being assigned to a unit. These standards must be maintained for certification from then on. This unit team training is accomplished at the kennel training area and in all areas of the installation where MP missions would reasonably dictate a need for familiarizing the team. The training environment should approximate the MP working environment as closely as possible. Training should occur at varying times throughout the day and night and on varying days of the week, including weekends. The patrol team must perform these tasks whether the personnel used as suspects are male or female, and whether they are dressed in military or civilian clothing. The emphasis in training must be on developing the skills of both the handler and the dog so that they complement each other and the team becomes a working unit. As proficiency evaluation criteria, the correct performance of these required task serves to verify that the handler understands how to control his or her patrol dog and is able to do so. In the working environment, the handler usually will need to adjust commands to deal with the individual situation. The team should be required to develop skills using both verbal command and visual commands (hand and arm signals) so that the patrol dog is responsive to either type of command.

3-19. Obedience commands

- a. On command from the handler, the patrol dog must execute

the commands of SIT, DOWN, HEEL, and STAY. The dog must execute correctly the commands when the dog is located at the handler's side and when the handler is positioned at a distance of 50 feet with no more than one correction per five commands. On the command of STAY, either in the SIT or DOWN position, the patrol dog must remain in that position for at least three minutes. The commands STAY and HEEL are rated critical. The commands SIT and DOWN are rated semi-critical.

- b. While off-leash, the patrol dog will maintain a proper heel position while the handler starts, stops, changes speed, changes direction, and executes passing movements. Movements the dog team must be able to perform include forward march, rear march, column left, column right, and halt. These and other marching movements are rated semi-critical.

- c. Recall will consist of calling the dog from a distance of 50 feet and stopping the dog at a distance of 25 feet with a SIT or DOWN command. The dog will then be called to HEEL position with a voice command. Recall is rated semi-critical.

3-20. Obedience course (semi-critical)

The patrol dog must negotiate the obedience course at moderate rate of speed, on-leash or off-leash, by command of its handler. When off-leash, the patrol dog will maintain the heel position while the patrol dog handler walks the dog through the course. Random stops will be made between obstacles, and some obstacles will be passed to ensure that the dog is responding to the handler's direction and not simply "running the course." This task is rated semi-critical.

3-21. Controlled aggression

When evaluating the patrol dog team on controlled aggression tasks, situations and locations should closely approximate real working situations. Evaluation exercises must not be limited to the kennel training area, but done in areas where MWD teams may be realistically employed.

- a. *False run (critical).* When the MWD team confronts a group of at least two persons and the dog is commanded to STAY, the patrol dog must remain in the heel or sit position, off-leash, and not attack when the MWD team is approached by one of the persons. One person wearing a concealed arm protector, the decoy, approaches no closer than four feet from the dog and then returns to the starting position. The decoy should not touch or provoke the dog or make any hostile gestures toward the handler. This task is rated critical. An appropriate evaluation exercise would be to have the decoy approach the MWD team, present an identification card to the handler by placing it on the ground; the handler retrieves the card, examines it, and then replaces it on the ground; the decoy reclaims the card and returns to the group or leaves the area. The handler should never break the line of sight between the patrol dog and the decoy. Alternatively, the decoy may present identification directly to the handler if the dog has developed sufficient tolerance for persons approaching that closely.

- b. *Attack (critical).* The patrol dog must stay in the heel or sit position, off-leash, and attack only on the command GET HIM. The decoy may be running toward or running away from the dog team. When the handler commands the dog to attack, the decoy halts and prepares to meet the attacking dog. The dog must complete the attack, bite and hold the decoy (using the arm protector), hold the bite for at least 15 seconds, and release on the command OUT. The patrol dog must return to its handler when commanded to HEEL. This task is rated critical. To develop a full range of appropriate attack responses, the patrol dog also must be trained to attack, bite, and hold a decoy who does not stop to meet the attacking dog. Similarly, after the command OUT, the dog should be trained to respond to commands other than HEEL, such as SIT, DOWN, and STAY so that the dog is prepared to reattack on command.

- c. *Search and attack (critical).* The patrol dog must, on the command STAY, remain in the heel, down, or sit position while the handler searches a decoy. The search will consist of patting down both arms, both legs, and the torso of the decoy. During the search, the dog must attack the decoy without command if the decoy tries to escape or to attack the handler. The patrol dog must bite and hold

the decoy for at least 15 seconds, and release on the command OUT. After the search, the handler moves to a position about two feet to the right and 10 feet to the rear of the decoy, so that the decoy is positioned between the dog and the handler. The handler faces the dog and commands the dog to HEEL. The dog must respond to the command without attacking the decoy. This task is rated critical. The patrol dog will be trained to not interpret movement by the decoy as a reason to attack. Some movement must be expected from a person being searched.

d. Stand off (critical). The correct response for this task is for the dog to cease pursuit of a decoy on the command OUT, then on command of HEEL, the dog will return to the handler. This task is accomplished off-leash, and the decoy may be moving or standing. Only one command of GET HIM will be given. Only one correction may be used to enforce the OUT command. If the decoy is moving, when pursuit begins, the decoy will not stop moving until the dog obeys the OUT command. The decoy will do nothing to cause the patrol dog to attack when the original command of GET HIM is given. This task is rated critical.

e. Escort (semi-critical). With the patrol dog in the Heel position, the MWD team must escort the decoy for at least 20 meters to a vehicle. The dog must stay in the heel position, off-leash, and will not attack while the decoy is placed into the vehicle. This task is rated semi-critical.

3-22. Building search (critical)

The patrol dog must find three decoys in different locations inside any structure, and show the handler where the decoys are located. For certification, this task must be done both on- and off-leash. When working off-leash, the handler will remain at the entrance until the dog indicates it has found one of the decoys. If the dog returns to the handler and then returns to the location of the decoy, this is sufficient. A patrol dog must be able to search away from the handler on its own. This task is rated critical.

3-23. Gunfire (critical)

The patrol dog must not be adversely affected by gunfire, either when the handler or another person is firing. The dog may respond on gunfire. However, gunfire will not be a command for the dog to attack. The patrol dog will hold its position while its handler or another person is firing a weapon. The dog will attack, only on command, a decoy who is firing a weapon. This task is rated critical.

3-24. Scouting or patrolling (critical)

The patrol dog must be able to find people by scent, sound, and sight. This task is rated critical. Proficiency in scouting or patrolling requires demonstrating the ability to detect persons according to the following criteria:

a. Detect and respond to the scent of one or two decoys who are hiding together or in separate locations, upwind at least 100 meters but not more than 200 meters, and follow the scent(s) to the decoy(s) location(s).

b. Detect and respond to the sound made by one or two decoys who are hiding together or in separate locations at least 100 feet downwind and follow the sound(s) to the source(s).

c. Visually detect and locate one or two decoys who are downwind together or in separate locations show the handler their locations. Night detection will be evaluated at a distance of at least 25 meters but not more than 50 meters. Daylight detection will be evaluated at a distance of at least 150 meters but not more than 250 meters.

d. The patrol dog will pursue and attack only on command.

e. The handler will respond properly each time the patrol dog responds. He or she will make proper use of the wind for an area search and will be able to state whether the patrol dog's response is for scent, sight, or sound. If the dog loses the scent, the handler will demonstrate the proper technique to help the dog regain the scent.

3-25. Vehicle patrol (semi-critical)

The patrol dog must ride quietly and calmly in a vehicle that the handler is driving and not show any aggressiveness toward passengers. The handler will not allow the dog to ride with its head outside of the window. The handler must demonstrate the procedures for mounting and dismounting from any assigned vehicle and will demonstrate his or her ability to control the dog while in the vehicle. This task is rated semi-critical.

3-26. Tracking (noncritical)

a. All patrol dogs identified as having tracking potential will receive tracking training to develop this potential. As a general rule, at least one out of every 10 patrol dogs can and should be trained for tracking. Tracking training takes a lot of patience and determination on the part of the handler. The patrol dog must not only have some natural ability for tracking, but also must have some natural willingness to track. Patrol dogs selected for tracking training should be trained and employed for tracking on a tracking harness. The harness serves as a useful cue to the patrol dog that it should focus its senses on tracking. Tracking harnesses may be procured by the unit and should be issued to the tracking dog handler for use with the dog.

b. The minimum level of proficiency a patrol dog trained for tracking must attain is to be able to follow the scent of a human on a scent at least one hour old for one mile over varied terrain on a course with several turns. Given suitable tracking conditions, a skilled tracer dog team can follow the natural wanderings of individuals or groups of persons for a least 5000 meters over rugged and varied terrain, on a scent track that is at least 12 hours old. While tracking, the dog is also capable of alerting its handler to the presence of tripwires and ambushes. Additional information on tracking can be found in FM 19-35, chapters 2 and 5. The tracking skill is rated noncritical.

Section V

Proficiency Training and Evaluation of Detector Dog Teams

3-27. Certification standards

a. The operational effectiveness of narcotics detector dogs depends on continual reinforcement of the detection ability through proficiency training. A minimum of four hours narcotics detection proficiency training is mandatory each week. This proficiency training is in addition to the patrol dog proficiency training for all patrol-trained dogs. The minimum standard of proficiency to maintain certification as a narcotics detector dog team is a 90 percent or better detection rate. Failure to maintain an average that meets or exceeds this minimum standard for three or more consecutive months results in automatic decertification of the team. The team may be recertified only after retraining and consistent demonstration of proficiency to an authority. Narcotics or contraband training aids, which are procured according to the procedures described in chapter 4, are essential for proficiency training.

b. The greater complexity and danger of explosives detection requires that the proficiency standards for EDD teams be significantly higher than for any other type of MWD team. Therefore, certification depends on the demonstrated knowledge and handling skill of the handler and the explosives detection rate of the EDD.

(1) Handler proficiency is evaluated by having the handler demonstrate detailed knowledge of:

(a) The characteristics of each of the explosives the team is trained to detect.

(b) How these explosives may be used in explosive devices.

(c) The requirements for safe handling, transportation, and storage of these explosives.

(d) The requirements for conducting safe training exercises.

(2) The handler must be a capable instructor so that other MPs can be trained to support an EDD team. The handler must have detailed knowledge of bomb threat response procedures and must be involved in bomb threat planning. This will ensure the operational

needs of the explosives detection team are met, giving the team the greatest opportunity to detect the presence of explosive substances.

(3) The EDD must receive a minimum of four hours explosives detection proficiency training each week. This proficiency training is in addition to the required patrol dog proficiency training for all patrol-trained dogs. The minimum standard of proficiency to maintain certification as an EDD team is a 95 percent or better detection rate. Failure to maintain an average that meets or exceeds this minimum standard for three or more consecutive months results in automatic decertification of the EDD team. The team may be recertified only after retraining and consistent demonstration of proficiency to a certification authority.

(4) Explosives training aids, which are procured according to the procedures described in chapter 5, are essential for proficiency training. Proficiency cannot be maintained without explosives training aids. Any EDD, whose detection rate falls below the 95 percent detection rate standard in any single month should be entered immediately into remedial proficiency training to ensure that problems are corrected before they become more serious.

3-28. The narcotics detector

Narcotics detector dogs are trained to detect concealed marihuana, hashish, heroin, and cocaine. Some narcotics detector dogs also may be trained to detect additional narcotics or drug contraband substances, such as amphetamines or barbiturates. Narcotics detector dogs are not trained to detect drug substances, such as PCP, that present a significant health and safety threat to the dog. Narcotics detector dogs are not trained to detect explosives. The credibility of the narcotics detector dog team is critical to the establishment of probable cause and the authorization to search. Therefore, the narcotics detector dog should never be trained to detect anything that would detract from the team's credibility. The narcotics detector dog's detection proficiency should be maintained on all of the narcotics and drug contraband substances the dog has been trained to detect and all training should be thoroughly documented in training records.

3-29. The explosives detector

The EDD is trained to detect several types of commercial and plastic explosive, detonating cord, potassium chlorate, and sodium chlorate. No training should ever be conducted which could damage the public's trust and confidence in the EDD team. The EDD team's detection proficiency should be maintained on all of the explosives the dog had been trained to detect. All training should be thoroughly documented in training records.

3-30. Proficiency training of detector dogs

All of the principles applied to the proficiency training of patrol dogs apply equally well to the proficiency training of detector dogs. That is, the training environment should be as close to the working environment as possible. Training scenarios should involve realistic situations, including decoys, supporting MPs, and supervisors. If there are opportunities to conduct training in the working environment, these should be used to train both the detector dog team and the supporting MPs. Training is automatically conducted any time training aid plants are used during an actual search to help maintain the dog's interest. Some of the principles which apply to the proficiency training of detector dogs are as follows:

a. All detector dogs must receive a minimum of four hours detection proficiency training each week. Detection training is in addition to the mandatory four hours minimum patrol dog proficiency training for all patrol-trained dogs. Even the nonpatrol-trained detector dogs must receive some obedience training, although the full four hours may not be necessary. The general rule is to train as much and as often as necessary to maintain the desired level of proficiency. There is, of course, some trade-off between training time and utilization time. Every handler also has unit responsibilities. Therefore utilization time may fluctuate depending on the extent of these responsibilities. Although the utilization goal is 30 hours per week, increased proficiency training requirements may reduce the ability

of the team to be used the full 30 hours per week. Unit commanders must balance the handler's operational and training responsibilities with unit responsibilities to ensure that the MWD team is ready to perform the MP mission.

b. The detector dog should not be expected to detect an odor unless the dog has access to the odor. The following will have a direct bearing on whether the odor will or will not be accessible to the detector dog:

- (1) The quality of the substance.
- (2) The length of time it has been in place.
- (3) The type of container enclosing the substance.
- (4) Heat.
- (5) Humidity.
- (6) Air currents.

c. The odor of a substance may be present in enough concentration to cause the dog to respond even after the substance has been removed. Therefore, when a detector dog responds and no drug or explosive is found, do not assume the dog has made an error. Some substances that are not illegal or dangerous have the same odor as the substances the detector dogs are trained to detect. When such substances are identified, their identity is included in the training program. In this way, handlers can differentiate between responses on these substances as opposed to a genuinely false response.

d. Training aids are planted during actual searches to keep the dog from exceeding the maximum search time and losing interest. Training aid plants also provide a periodic verification during an actual search that the dog is working consistently. This training also helps the dog's continuing adaptation to all working environments.

e. The person hiding training aids during training exercises should be varied to prevent the dog from responding on the person's scent. The handler's scent is very familiar to the dog. If the handler consistently hides the training aids, the detector dog quickly learns to respond on the handler's scent rather than the substance and numerous nonproductive responses may result. An increasing number of nonproductive responses is a good indication that this situation exists. By that time, extensive retraining may be necessary to correct the problem.

3-31. Proficiency evaluation of detector dog teams

a. Records. The proficiency of a detector dog team can be evaluated by reviewing the training and utilization records. The records will reveal the frequency of proficiency training, the amount of time which has been spent in training, the types of substances on which training has been conducted, and the performance record of the detector dog team in training and on duty. The detector dog's proficiency rating also is recorded on the training and utilization record. A proficiency evaluation based on records always should include at least three months records (at least one year worth of records are required), and should clearly substantiate the detector dog team's ability. The detector dog's proficiency rating should meet or exceed the detection rate standard of 90 percent for narcotics detector dogs and 95 percent for explosives detector dogs.

b. Demonstration. The detector dog team may be required to demonstrate its proficiency if an authority is not satisfied that the training and utilization records have clearly substantiated the team's ability. Some of the performance indicators which help to verify the detector dog team's ability are as follows:

- (1) The dog team should approach the area or object to be searched from downwind whenever possible.
- (2) The handler should give the command SEEK to start the search.
- (3) On command, the dog should actively search, sniffing areas and objects as shown by the handler.
- (4) The search should be systematic and overlook nothing capable of hiding the substance being sought. The search should start from the outside to the inside, and from left to right. A scan of the area to be searched before the detailed systematic search is acceptable. However, the dog must stay on-leash at all times during the presearch scan.
- (5) When the dog smells an odor it was trained on, it should try

to go to the source of the odor and give a response (alert) recognizable to the handler. Some dogs are trained to give a passive response (sit, bark, and so forth) and other dogs will give an aggressive response (excitement, scratching, pawing, biting, and so forth).

(6) The handler should recognize the dog's response, praise or reward the dog, and continue to search until the demonstration is complete.

(7) The number and type of training aids selected should be appropriate to the purpose of the demonstration.

3-32. Validation tests

a. Validation tests will be given by the kennelmaster, at least quarterly, to verify the detection accuracy rates recorded on DA Form 3992-R. Validation tests will be given to any detector dog whose demonstrated proficiency appears to significantly differ from the rating recorded on the DA Form 3992-R. The validation test should verify proficiency or identify the specific detection weaknesses which need corrective training.

b. Validation tests should include at least 20 trials for a narcotics detector dog and at least 45 trials for an EDD. These trials should be divided so at least five trials are made with each substance the dog is trained to detect.

c. Training aids should be distributed in at least four different areas over a 2-day period. A person fulfilling the requirements of a decoy will be used to make the training aid plants. Every type of substance which the dog has been trained to detect will be used during validation testing.

Section VI Administrative Records

3-33. DD Form 1834 (Military Working Dog Service Record)

a. DD Form 1834 contains the official and physical description of the MWD when the dog is procured.

b. The form is completed and issued by the 341st Military Working Dog Training Squadron with initial assignment of the dog after training.

c. The form records all certification training at the MWD Squadron received by the dog throughout the dog's service career.

d. Each time a new handler is assigned to the dog, the handler information is recorded on the back of the form.

e. The section titled "Final Disposition" is completed by the organization to which the dog is assigned at the time the dog dies or undergoes euthanasia.

3-34. DA Form 2807-R (Military Working Dog Training and Utilization Record)

a. DA Form 2807-R is a daily record of training and employment activities for all MWDs. (See fig 3-2 for a completed sample.)

b. Entries are the responsibility of the handler.

c. When completed, the record provides a daily report of training, utilization, and feeding for one month which can aid in identifying training deficiencies and can improve the utilization of the MWD team.

d. When the form is used to schedule training or duty, it helps to ensure that:

(1) Scheduling conflicts are avoided.

(2) Training and utilization rates are maintained.

(3) All tasks are repeated frequently enough to maintain team proficiency.

(4) Corrective training is sufficiently intensive to be productive.

e. One form is required for every MWD each month and forms are retained in the dog's record for at least one year from the date of the last entry on each form.

f. When completed, the form gives the handler, the kennelmaster, the commander, the veterinarian, and other supervisors essential training, utilization, and health management data.

g. A copy of DA Form 2807-R is located at the back of this handbook, and can be locally reproduced on 8 1/2 by 11-inch paper.

3-35. DA Form 3992-R (Narcotics or Explosives Detector Dog Training and Utilization Record)

a. DA Form 3992-R will be used as a daily record of training, use, and performance of all narcotics and EDD teams.

(1) This form is used in addition to DA Form 2807-R, and is intended to be an accurate record of the training, utilization, and proficiency status of the detection capability for each detector dog. AR 190-12 prescribes the use of the form. (See fig 3-3 for a completed sample.)

(2) Its purpose is to record and establish the detector dog's detection reliability by using training aids during both training and actual searches.

(3) It is specifically a record of the detector-related training and utilization of the detector dog team.

(4) At least one form is required for every detector dog every month.

(5) The handler is responsible for the information entered on the form.

(6) When completed, the form gives the handler, the kennelmaster, the commander, the veterinarian, and other supervisors essential training, utilization, and health management data.

(7) Completed DA Forms 3992-R will be retained in the administrative record for at least one year from the date of the last entry on the form.

(8) A copy of DA Form 3992-R is located at the back of this handbook and can be locally reproduced on 8 1/2 by 11-inch paper.

b. The training section of the form is used for recording all training of the detector dog team in the detection skill. All detection training is conducted using all appropriate training aids.

(1) In order to maintain the detector dog's proficiency, the dog must receive training on each of the substances it has been trained to detect. The frequency with which the dog is trained on each substance is a very important part of maintaining the dog's proficiency. Accordingly, the handler must keep a training record that shows the frequency with which the handler trains with the dog on each of the appropriate training aids. The training record must also show the proficiency of the dog at detecting each of the required substances.

(2) A suggested method of keeping this training record is to use a separate DA Form 3992-R for each substance the dog is trained to detect. By consecutively numbering all the forms for a particular month, the forms also may be used to record utilization and detector dog search data in chronological order. For example, a narcotics detector dog is trained to detect marihuana, hashish, heroin, and cocaine. Using one DA Form 3992-R for each substance, the form for marihuana is number one, hashish is number two, heroin is number three, and cocaine is number four. Training and proficiency data are entered on the appropriate form. Utilization data is entered on form number one. Forms two, three, and four would only be used if the commander, kennelmaster, or handler wanted to account separately for more than one mission on each calendar day. That is, the second mission of the day is entered on form number two, the third mission on form number three, and so on. Detector dog search data is entered chronologically on form number one. Forms two, three, and four are used, in turn, when all the lines on the preceding form are filled in.

(3) The goal here is not to produce a set of complicated and confusing rules about how to use these forms. Instead, the goal is to suggest some of the ways that the forms can be used to develop meaningful training and utilization data. This data should improve the proficiency of the detection team and ensure that team assets are being used effectively and efficiently to support the mission.

c. The utilization section is used to record all operational detection missions. If desired, when training aid plants are used during actual searches, the handler can keep track of the number of training aids planted and the number found by recording those numbers in the training section. However, utilization search time should not be counted as training time even if training aids are used. Also, training

aid finds should not be included in the total number of finds during an actual search.

d. The detector dog search data section is used by the handler to record all relevant information about the productivity and success of each detection mission. Remember to use the remarks section (or a separate sheet of paper) to record any information which may be useful in preparing the team for future searches, or which may be applicable or useful to other detector dog teams. The greater the amount of information shared among detector dog handlers, the more successful the detector dog program will become.

e. When making entries in the detector dog proficiency section, remember that the only way to determine proficiency accurately is to know the exact number of substances (training aid plants) which are supposed to be found. This is the only way to be able to differentiate between correct responses and false/missed responses. The control of the majority of variables in a training environment ensure that the dog is responding to the real substance in the training aid rather than a masking agent, a distraction, or some other external cue.

f. The integrity of the handler and kennelmaster to record both the successes and failures of the detector dog team is critical to the credibility of the detector dog program. The commander places a significant trust in the narcotics detector dog handler because the dog's response serves as the basis for an authorization to search and the possible criminal prosecution of a person. For the EDD handler, the quick identification of training or operational deficiencies may mean the difference between a successful detection of an explosive device or the tragic loss of life or property. No handler should ever betray the commander's trust.

g. Remember that total training and utilization hours for a detector dog is computed by adding together the training time and utilization time reported on both DA Form 2807-R and DA Form 3992-R.

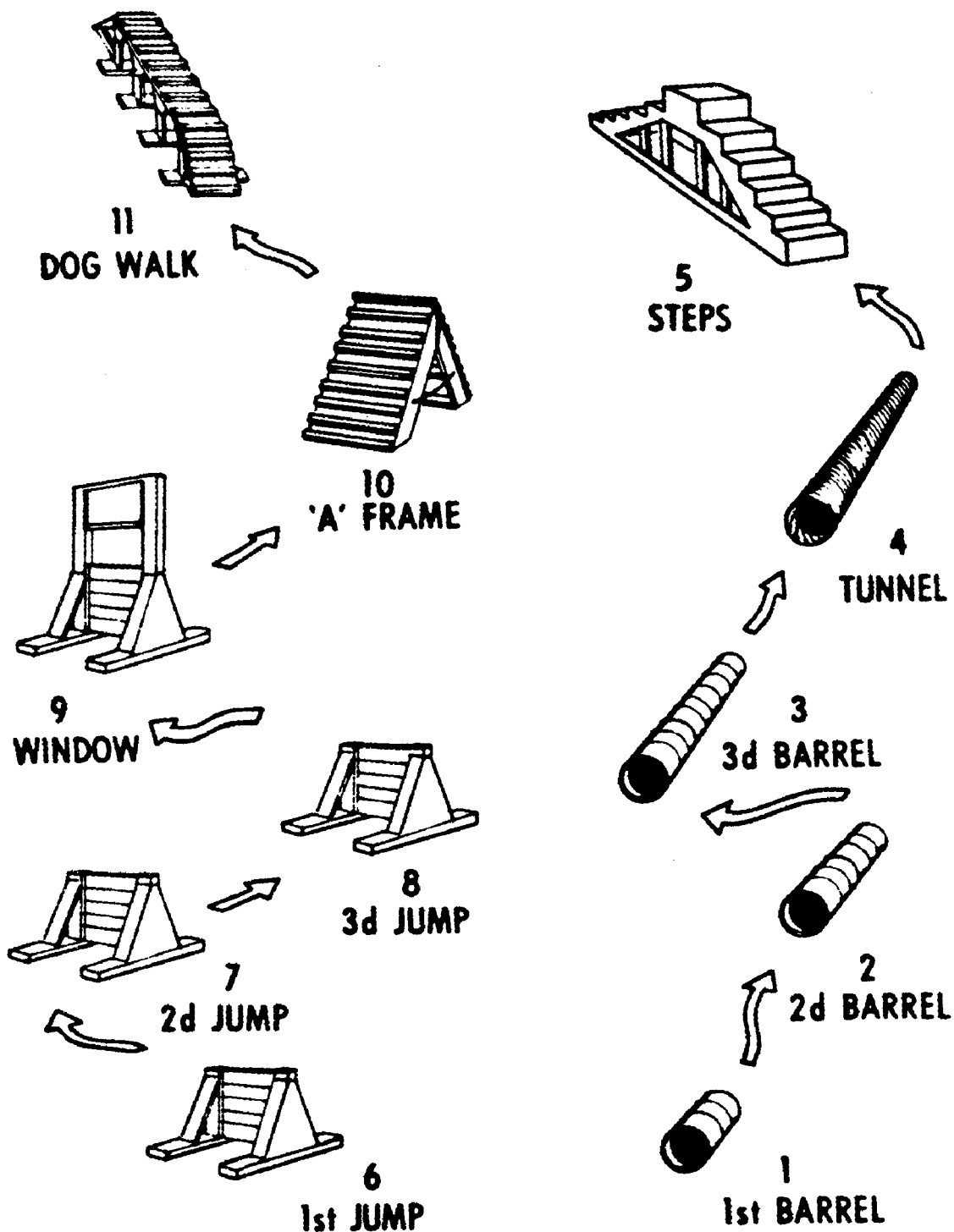
Section VII

Training of Nonhandler Military Police Personnel

3-36. Military police training

Any personnel that are routinely expected to work with an MWD team as a partner or back up for the team should be educated about the functions dog teams perform, how to work safely around an MWD team, and how to support the MWD team without interfering with the dog. The kennelmaster and the individual handlers probably are the best qualified personnel to provide this instruction to other MP personnel. All MP personnel should be able to answer the following questions:

- a.* What effect does wind have on how a dog works?
- b.* Where should you be when the dog is being used to clear an area or building?
- c.* Where should you be when the dog is tracking?
- d.* Who will do the search of a person if you are to properly assist a handler when a search of a suspect is necessary? (The common rule is that the handler does the search with the dog as primary backup and other MP personnel as secondary backup.)
- e.* What do you do if the dog handler is hurt or unconscious and you have to aid them?
- f.* How do you support a narcotics detector dog team?
- g.* How do you support an explosives detector dog team?



**EACH OBSTACLE IS 15 TO 20 FEET FROM PREVIOUS OBSTACLE
AND COURSE RUNS IN SEQUENCE**

Figure 3-1. Obedience course

DETECTOR DOG SEARCH DATA							
NO.	TIME	DATE	LOCATION	MPR NUMBER	SUBSTANCE	QUANTITY	REMARKS
1	0630	1 JUL	B / 1-21 INF	634-84	MARIJUANA	50 grams	Field test verified
2	0730	2 JUL	Bldg 501	647-84	COCAINE	6 grams	
3	1030	3 JUL	C / 2-37 ARMOR	649-84	COCAINE	3 grams	
4	0900	5 JUL	C / 2-37 CAV	659-84	MARIJUANA	20 grams	
5	0530	6 JUL	R / 1-19 INF	663-84	MARIJUANA	43 grams	Field test verified
6	1945	9 JUL	D / 323 ENG	682-84	MARIJUANA	100 grams	Field test verified
7	2015	10 JUL	Bldg 523	690-84	MARIJUANA	63 grams	Field test verified
8	2030	11 JUL	Bldg 677	699-84	MARIJUANA	71 grams	Field test verified
9	2330	12 JUL	MAIN GATE	712-84	MARIJUANA	19 grams	
10	2130	13 JUL	SOUTH GATE	720-84	MARIJUANA	28 grams	
11	1945	17 JUL	ATCS 1473-SOUTH POST	726-84	HEROIN	5 grams	
12	2240	18 JUL	NORTH GATE	733-84	HASHISH	10 grams	
13	2130	19 JUL	ATCS 1475-SOUTH POST	740-84	MARIJUANA	104 grams	Field test verified
14	2010	20 JUL	C / 1-37 ARMOR	749-84	MARIJUANA	37 grams	
15	0700	23 JUL	A / 1-19 INF	780-84	MARIJUANA	10 grams	Residue, Seeds
16	0745	24 JUL	C / 323 ENG	788-84	MARIJUANA	17 grams	
17	0630	25 JUL	155TH AVN CO	798-84	MARIJUANA	5 grams	Residue, Seeds
18	0900	26 JUL	D / 1-55TH ADA	807-84	MARIJUANA	18 grams	
19	0530	31 JUL	HHC / 56TH TMS	826-84	MARIJUANA	154 grams	Field Test Verified
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							

DETECTOR DOG PROFICIENCY																																	
(Alerts on training aids during training and actual searches)																																	
DAY OF MONTH		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
a. TOTAL CORRECT ALERTS		6	6	6	20	6	5	11	11	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
b. TOTAL FALSE/MISSED ALERTS		0	0	0	5	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
																	100% = 917 / 205																
																	PROFICIENCY = $\frac{a}{a+b} \times 100$																
																	92%																

Figure 3-3. Sample completed DA Form 3992-R—Continued

Chapter 4 Controlled Substances Training Aids

4-1. General

The effectiveness of narcotics/contraband detector dogs depends on continual reinforcement of the detection skill through proficiency training.

a. Army installations located within the States or territories of the United States that are assigned narcotics/contraband detector dogs are required to register with the Drug Enforcement Administration (DEA), U.S. Department of Justice, before obtaining controlled substance training aids from any source. Possession and/or use of controlled substance training aids by Army installations or activities not registered with DEA is prohibited by law. Proof of registration is possession of a current registration certificate DEA Form 223 (Controlled Substances Registration Certificate). An Army research protocol filed with the DEA is the document that allows installations or activities identified in the protocol to apply for registration, and to then procure, store, and use controlled substance training aids in proficiency training. (See section 33, part 1301, title 21, Code of Federal Regulations (21 CFR 1301.33).)

b. Army units or installations located outside the States or territories of the United States are not required or eligible to register with DEA. DEA controlled substance training aids are not available to overseas units. Overseas units will coordinate all activities involving the use of controlled substances for training with their respective host government(s). Consistent with host country agreements, controlled substance training aids may be obtained from US Army Criminal Investigation Command (CID) or MP evidence custodians in accordance with AR 195-5. Security, control, accountability, use, and destruction of training aids obtained from CID or MP evidence custodians will be as prescribed in this chapter.

c. The requirements stated in this chapter are derived from section 801, title 21, United States Code (Controlled Substances Act) (21 USC 801) as published in part 1301, title 21, Code of Federal Regulations (21 CFR 1301). Current copies of 21 CFR 1301 should be on hand in each unit registered with DEA. Units may obtain copies through their installation library or directly from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402; commercial telephone (202) 783-3238. The CFR is revised annually as of 1 April. The numbers and letters in parentheses at the end of some paragraphs in this chapter are references to paragraphs in the CFR. Questions concerning these requirements may be directed to the Compliance Division of the local DEA Field Division/Resident Officer. DEA Field Divisions, District and Resident offices, are listed in figure 4-1 and a map showing these elements is provided in figure 4-2.

4-2. DEA registration

The Army research protocol is the only protocol required for registration. Installation PMs or security officers are not required to submit a protocol to DEA with their registration application. However, the transmittal letter should make reference to the Army research protocol on file at Headquarters, DEA, which covers the Army narcotics/contraband detector dog program. DEA registration for authority to procure and use controlled substance training aids (marihuana, hashish, heroin, and cocaine) will be accomplished as follows:

a. Registration for heroin, hashish, and marihuana (Schedule I). Complete DEA Form 225 (New Application for Registration Under Controlled Substances Act of 1970). The form is completed according to the instructions printed therein. A sample DEA Form 225 – Schedule I at figure 4-3 also may be used as a guide. The individual assigned direct responsibility for control and safe keeping of controlled substance training aids will sign the DEA Form 225 as the applicant. This normally will be the installation PM or security officer or his designee. A custodian and an alternate custodian should be appointed in writing to handle the daily responsibility for controlled substances (21 CFR 1301.32).

b. Registration for cocaine (Schedule II). A separate DEA Form 225 must be submitted to obtain DEA registration for cocaine. A separate form is required because cocaine is classified in a different schedule. The form is completed according to the instructions printed therein. A sample DEA Form 225 – Schedule II at figure 4-4 also may be used as a guide (21 CFR 1301.32).

c. Address. Send the original completed DEA Form(s) 225 to the Registration Branch, Drug Enforcement Administration, Department of Justice, P.O. Box 28083, Central Station, Washington, DC 20005; and a copy to the major Army command under whose jurisdiction the installation falls (21 CFR 1301.32 (c)).

d. DEA responsibilities. When the application is approved, DEA will issue a DEA Form 223 (Controlled Substances Registration Certificate). DEA may assign a single registration number to both Schedule I and II substances rather than issuing two registration certificates. This does not change the requirement to submit separate applications. The registration certificate authorizes the applicant from the registered installation/activity to procure, store, and use controlled substance training aids for narcotics/contraband detector dog proficiency training. No other personnel are required to register. The Controlled Substances Act authorizes any Federal officer engaged in the enforcement of any Federal law relating to controlled substances, drugs, or customs to possess controlled substances in the course of his or her duties (21 CFR 1301.26 and 1301.44).

e. Renewals. The registration certificate normally will be valid for one year. Approximately 60 days prior to the expiration date, a preprinted DEA Form 225a (Renewal Application for Registration) will be sent to each registrant by DEA. If DEA Form 225a has not been received within 45 days prior to the expiration date, notify the appropriate DEA regional office. DEA Form 225a will be used following the same procedures for completion of DEA Form 225 to reregister. Copies of renewal registration certificates will be sent to the appropriate MACOM as required in *c* above (21 CFR 1301.32 (c)).

f. Changes. If, during the period of registration, changes occur which modify any information contained on the original DEA Forms 225 or 225a, a certified letter identifying the changes will be sent to the Registration Branch, Drug Enforcement Administration, Department of Justice, PO Box 28083, Central Station, Washington, DC 20005. The letter will include the registrant's name, address, and registration number(s) that are printed on the current certificate of registration, and the new or modified information. The letter is processed by DEA in the same manner as a new application. When approved, DEA will issue a new certificate of registration which will be maintained with the old certificate of registration until expiration. Copies of new registration certificates will be sent to the appropriate MACOM as required in *c* above (21 CFR 1301.61).

4-3. Procurement of training aids

Each installation or activity with assigned narcotics/contraband detector dogs that is registered with DEA is authorized to procure controlled substance training aids. Maximum amounts permitted in a procurement action are up to 20 grams of cocaine, up to 20 grams of heroin, up to 20 grams of hashish, and up to 200 grams of marihuana. The maximum quantities of controlled substances authorized to be on hand at any one time are 300 grams of marihuana, 30 grams of hashish, 30 grams of heroin, and 30 grams of cocaine. This "extra" amount is authorized only when "old" training aids are being destroyed and "fresh" controlled substances are being issued.

a. DEA supplies bulk quantities of marihuana, hashish, heroin, and cocaine to the US Air Force Security Police Academy, 341st Military Working Dog Training Squadron. Upon receipt of bulk shipments from DEA, the 341st Military Working Dog Training Squadron has the substances qualitatively analyzed if this information is not provided by DEA. The substances are weighed and packaged into appropriate quantities for shipment as training aids to registered units or installations.

b. Individual units possessing a current certificate of registration DEA Form 223 will order training aids as required by submitting DEA Form 222 (DEA Official Order Form for Schedule I and II

Controlled Substances). Supplies of these preprinted order forms will be provided by DEA when the registration certificate is issued. The DEA Form 222 is controlled and a sample is not included with this pamphlet. However, the form is easy to complete using the following guidance:

(1) *Supplier's name.* 341st Military Working Dog Training Squadron.

(2) *Supplier's address (city and State).* Lackland AFB, TX 78236.

(3) *Street address.* Leave blank.

(4) *Date block.* Leave blank.

(5) *Packaging.* Heroin, hashish, and cocaine training aids are packaged in 20-gram containers. Marihuana is packaged in a 200-gram container. Orders should state the same quantities of these substances as follows:

(a) Line item 1: one package, size of package: 200 grams, marihuana.

(b) Line item 2: one package, size of package: 20 grams, hashish.

(c) Line item 3: one package, size of package: 20 grams, heroin.

(d) Line item 4: one package, size of package: 20 grams, cocaine.

(6) *Name and address of registrant block.* The installation or activity already should be identified in this block when the forms are obtained from DEA.

(7) *Signature of purchaser or his attorney or agent.* Enter the typed name, rank, title, and signature of the responsible individual who signed the DEA Form 225 or 225a as applicant. (See para 4-2.)

c. Mail copies one and two to Commander, 341st Military Working Dog Training Squadron, Lackland AFB, TX 78236. Keep copy three for your files. National Drug Codes are used by DEA on the DEA Form 225/225a and the unit may wish to add this information to its file copy of DEA Form 222. Drug codes on copies one and two of DEA Form 222 are filled in by the supplier.

d. The 341st Military Working Dog Training Squadron will fill the order and record the number of containers of each substance furnished and the date the containers are shipped to you on copies one and two of the order form. The substances can only be shipped to the location preprinted on the order form. The 341st Military Working Dog Training Squadron will keep copy one of the order form for its records and will forward copy two to the DEA at the end of the month in which the order was filled. The 341st Military Working Dog Training Squadron will include a qualitative analysis statement for each line item in the shipment.

e. When the requested shipment is received, the appointed custodian will verify the weight of each container and record, on copy three of the order form, the weight of each container received and the date received. Controlled substance training aids will be stored and controlled as required by this chapter.

f. Any order form which is not complete, legible, properly prepared, properly signed, or shows any signs of alteration or erasure will not be accepted by the supplier (1). Unaccepted forms are returned to the installation or activity with a statement explaining the reason(s) the form was not accepted. Copies one and two of the unaccepted forms and the statement explaining nonacceptance will be filed with the retained copy three and maintained for a period of at least two years. A defective order form may not be corrected. A new order form must be initiated (21 CFR 1305.11).

4-4. Controlled substances accountability folder

A controlled substances accountability folder will be kept for each separate controlled substance training aid shipment from the supplier. A new folder is started whenever a new DEA Form 222 is initiated. Similarly, a folder will be started for each issue of controlled substances from a CID or MP evidence custodian.

a. When a new training aids shipment is requested, copy three of the DEA Form 222 is the first document filed in the folder. A copy is made of copy three DEA Form 222 for each additional control substance folder as needed. For controlled substances requested and obtained from CID or MP evidence custodians, a copy of the request and DA Form 4137 (Evidence/Property Custody Document)

on which the controlled substances are accepted are the first documents filed in the folder.

b. When controlled substances are received, the appointed controlled substance training aids custodian (or alternate) first weighs each container to verify the quantity of substances being received. Any discrepancies should be immediately reported to the issuing agency. Any theft or unexplained loss should be reported and investigated according to the criteria in paragraph 4-6e. For DEA training aids, annotate copy three of the DEA Form 222 in the space provided with the number of containers of each substance received, the weight of each container, and the date received. Separate .5 gram each of heroin and cocaine and preserve separately for analysis. When this is done, the custodian may repackage the substances into other types of containers and in various quantities, if desired. Do not mix controlled substances with each other or with other substances when repackaging training aids. Qualitative integrity of the controlled substances must be maintained.

c. Controlled substance training aids/containers will be identified using a three-number code with hyphens between the numbers, for example, 1-3-4.

(1) The first number indicates the order in which the controlled substances were received by the using installation or activity. For example, 1-3-4 would indicate the training aid/container is from the first shipment of DEA controlled substances received from the 341st Military Working Dog Training Squadron. Numbers will be assigned sequentially beginning with one and will continue indefinitely without interruption, duplication, or consideration for changing years.

(2) The second number indicates the container in the shipment from the 341st Military Working Dog Training Squadron or in the issue from an MP or CID evidence custodian from which the training aid was taken. If only one container of a controlled substance is received in a shipment or issue, all training aids taken from the container will have the same middle number. If one container of marihuana and one container of heroin are received, they will be identified as number one and two in the sequence they appear on the DEA Form 222 or DA Form 4137. The DEA Form 222 (or DA Form 4137) will be annotated with this identifying number for each container when the weight of the controlled substances received is verified according to the procedure in b, above. For example, 1-3-4 would indicate that the training aid came from the third container in the first shipment received from Lackland AFB by the installation or activity.

(3) A third and final number in the three-number code identifies a specific training aid. Each portion or container which results from the subdividing or repackaging of an original container of controlled substances received from any source will be assigned a sequential number beginning with the number one. For example, training aid/container 1-3-4 is the fourth training aid repackaged out of the third original container, received in the first controlled substance shipment from the 341st Military Working Dog Training Squadron.

(4) The three-part number, then, represents the issue or shipment sequence number, the original line item number from the DEA Form 222 or DA Form 4137 used to issue the controlled substances, and the training aid number. For example, in your first shipment of controlled substances you received heroin and marihuana which were line items number one and two on DEA Form 222. When you repackaged the substances to make training aids, you made three heroin training aids and seven marihuana training aids. Your heroin training aid containers would be numbered 1-1-1, 1-1-2, and 1-1-3. Your marihuana training aid containers would be numbered 1-2-1, 1-2-2, 1-2-3, 1-2-4, 1-2-5, 1-2-6, and 1-2-7.

d. Each controlled substance training aid/container will be assigned its own unique training aid/container number, and each will be individually weighed. This information will be recorded on DA Form 4608-R (Controlled Substances Accountability Record). An example of a completed DA Form 4608-R is provided in figure 4-5. All controlled substances received will be accounted for on the DA Form 4608-R. A new DA Form 4608-R will be initiated each time new controlled substances are received and will be maintained

in the controlled substances accountability folder. Disposition of all training aids/containers will be recorded in the "Remarks" column.

e. Controlled substance containers/training aids will be signed out, and signed back in by the custodian whenever they are removed from secure storage for training or for any other reason. The DA Form 4607-R (Controlled Substance Training Aid Utilization Record) will be used for this purpose. One DA Form 4607-R will be used for each training aid/container. The DA Form 4607-R will be maintained with the training aid/container until final disposition. When final disposition is made, the method of destruction or disposal will be recorded on the form including the date, witnesses, and any other appropriate information. The completed DA Form 4607-R will be filed in the controlled substances accountability folder along with any associated documents. Figures 4-6 and 4-7 provide examples of properly completed DA Forms 4607-R, correctly cross-referenced with the sample DA Form 4608-R at figure 4-5 and 4-8.

f. Controlled substances accountability folders will be retained in active secure files for at least 2 years after the date of the last action affecting any training aid that was taken from the controlled substances to which the folder pertains. Because portions of each shipment or issue of controlled substances may become unusable and be disposed of at different times, several DA Forms 4607-R and 4608-R, DEA Forms 41 (Registrant's Inventory of Drugs Surrendered), letters of disposition instructions, and letters of notification of disposition may be filed in the accountability folder. These records are subject to inspection by the Department of Justice, the DEA, the commander, the PM, the inspector general, or by any representative of these agencies or individuals who has been appointed or authorized to conduct inspections or investigations (21 CFR 1316.03).

4-5. Destruction of training aids

a. Destruction of training aids, for any reason, which were procured from the 341st Military Working Dog Training Squadron will be accomplished as follows:

(1) Store all controlled substances or packaging determined to be unusable physically separate from usable controlled substances. Each package of unusable controlled substance/package will be marked clearly as unusable.

(2) Submit a letter to the appropriate DEA office requesting disposition instructions for controlled substances to be destroyed. The letter must list the type and quantity of all the drugs scheduled for destruction. The DEA Division or District Administrator will furnish instructions for proper disposal of substances. Complete DEA Form 41 and submit three copies to the DEA office. Insert one copy for each type of substance destroyed into the respective control substance accountability folder. Copies of the DEA letter of disposition instructions are also to be filed in the accountability folders. DEA Form 41 is available on request from DEA offices (21 CFR 1307.21).

b. Destruction of controlled substance training aids and packaging obtained from CID or MP evidence custodians will be accomplished as follows:

(1) When all or part of a controlled substance training aid is determined to be of no further value for training, it will be destroyed in the presence of a witness (SFC/E7 or above) using an approved method of destruction (for example, marijuana may be destroyed by burning).

(2) Appropriate entries will be made on all accountability documents, including the DA Form 4137, noting the following:

- (a) Date.
- (b) Time.
- (c) Location of the destruction.
- (d) The identity of the person performing the destruction.
- (e) The identity of all witnesses to the destruction.

(3) Accountability documents will be retained in active secure files for at least two years after the date of destruction of all the

training aids that were taken from the original amount of controlled substances issued on DA Form 4137.

4-6. Security requirements

Strict physical security and control procedures must be applied to prevent the misuse or theft of controlled substances used as training aids obtained from any source. All installations or activities using controlled substance training aids will comply with the following minimum security and control requirements (21 CFR 1301.72):

a. Storage location. Controlled substance training aids will be stored in a location meeting the minimum criteria shown below.

(1) Buildings and rooms will meet or exceed the minimum structural standards specified for secure storage structures in AR 190-51.

(2) The door(s) to the room in which controlled substance training aids are stored will be secured using approved locking devices. Lightweight doors will be replaced with solid metal or wood doors, or covered with 9-gauge to 12-gauge security screen or 16-gauge sheet steel. They will be fastened with smooth-headed bolts and nuts, and peened in place.

(3) All windows providing access to a storage room that is not staffed 24 hours a day will be protected by a 9-gauge to 12-gauge security screen, or 3/8-inch or larger diameter steel bars spaced no more than 6 inches apart. The frames holding the screen or bars must be fastened to the window frame with smooth-headed bolts.

b. Storage containers.

(1) Controlled substance training aids will be secured in a Class 5, General Services Administration-approved security container equipped with approved 3 position combination locks. If the security container weighs less than 750 pounds, it will be bolted, chained, or cemented to the floor or wall in such a way that it cannot be readily removed.

(2) Heroin, cocaine, hashish, and marijuana will each be stored in a separate area, drawer, or container within the security container to prevent cross-contamination of the individual odor characteristics of each substance. Marijuana has a very strong scent and is the most likely substance to cause an odor cross-contamination problem.

c. IDS. The security container should be protected by an approved IDS connected to a central monitoring station, with personnel on 24-hour duty who can provide an armed response to an alarm signal. When IDS is used, it will be installed to protect the storage container as well as the doors and windows to the storage room for unauthorized entry. The decision whether to install IDS is based on:

- (1) A thorough risk analysis considering the security threats.
- (2) The location of the storage facility.
- (3) The structural integrity of the building and room in which the storage container is located.
- (4) The quantity of drugs being stored.
- (5) The relative cost of compensatory measures necessary to provide security equivalent to an IDS.

d. Access control. The controlled substances storage area shall be accessible to an absolute minimum number of specifically authorized personnel (21 CFR 1301.72(d)).

(1) Access to the controlled substance storage room will be limited to the primary and alternate custodians, and a very limited number of other individuals. These are persons who will require access for official purposes. They are to be specifically identified in writing by the PM or security officer. A copy of access authorizations will be maintained on file in the storage area, but will not be posted in the area or on the container.

(2) SF 702 (Security Container Checklist) will be used to record all openings and closings of the storage container. SF 702 will be posted on the container. The completed SF 702 will be retained for 30 days from the date of the last entry on the form and will then be destroyed unless needed for an investigation.

(3) The doors to the storage area will always be locked unless authorized personnel are physically present and have direct observation of the storage container.

(4) During normal duty hours or at other times when the storage room has been authorized to be open, unauthorized personnel will

not be allowed to enter the storage room. The storage container will not be opened except to issue, inventory, repackage, or return controlled substance training aids, or to perform other necessary and authorized functions. At all other times, the storage container will be secured.

e. Weight checks.

(1) Each container of controlled substances will be weighed monthly and verified by a disinterested person (E7 or above) who will certify the exact weight of each controlled substance training aid/container in grams. The Trip Balance Laboratory, NSN 6670-00-401-7195, one of which is authorized by CTA 8-100, for each military police unit with narcotics/contraband detector dogs authorized, may be used for this purpose. Monthly weight checks will be recorded on a separate DA Form 4608-R for each training aid/container. Completed weight check forms will be filed in the controlled substances accountability folder. A sample completed form is provided at figure 4-8.

(2) Minor weight variation because of irretrievable loss resulting from breakage of training aids during dog team training exercises or any unexplained or suspicious loss of more than one gram of heroin, cocaine, or hashish, or two grams of marihuana will be reported immediately to the PM or security officer. An immediate investigation will be conducted. One copy of the report of investigation will be sent to HQDA(DAMO-ODL-S), 400 Army Pentagon, Washington, DC 20310-0400, and one copy will be sent to the appropriate MACOM PM or security officer. One copy of the investigation report will also be filed in the controlled substances accountability folders.

(3) Any theft or significant loss (one gram or more of heroin, cocaine, or hashish; and 2 grams or more of marihuana) of any controlled substance obtained from the 341st Military Working Dog Training Squadron will be reported immediately to the appropriate DEA Field Division or Resident Office upon discovery of such theft or loss. DEA Form 106 (Report of Theft or Loss of Controlled Substances) will be used. Thefts must be reported whether or not the controlled substances are subsequently recovered and/or the responsible parties are identified and action taken against them (21 CFR 1301.74(c)). A copy of the completed DEA Form 106 will be attached to each of the copies of the report of investigation required for distribution in compliance with the requirement of (2) above.

f. Inventories.

(1) Inventories will be made:

(a) Once during each calendar quarter.

(b) When a new primary controlled substance training aid custodian is appointed.

(c) When any controlled substances are lost from storage, or when there has been a breach in security of the storage room or storage container.

(2) Quarterly inventories will be made by a disinterested person (anyone not assigned to or with direct responsibility for the installation MWD program) in grade E7 or above, who is appointed by the PM or security officer, or installation or activity commander. Inventories which are required because of losses or breaches of security will also be conducted by a disinterested person.

(3) Change of primary custodian inventories will be joint inventories between the old and new custodian.

(4) An inventory will completely account for all quantities of controlled substances maintained as training aids and will be a complete audit of the accountability records pertaining to those substances. Only those records that are still active and those that have not been previously audited need to be audited. The person conducting the inventory will positively account for all quantities and types of substances by verifying the audit trail set up by the DEA Form 222 (or DA Form 4137), DA Forms 4608-R, DEA Forms 41 (or destruction certificates), and the amount of the substances on hand.

(5) The person conducting the inventory will prepare a report for the PM or security officer, or other appointing authority. A copy of the report will be maintained with the controlled substances accountability folders in a secure files storage area. Inventory reports

will be maintained for at least two years from the date of the report (21 CFR 1304.04).

(6) Inventory reports will include the following information:

(a) Date of inventory and the inclusive dates of all controlled substances accountability records included in the inventory.

(b) Name, rank, and unit of the person conducting the inventory. Include a copy of any written appointing document for disinterested persons or the appointing document for a new primary custodian.

(c) Quantity of each type of controlled substance ordered and received (from DEA Form 222 and/or DA Form 4137 in controlled substances accountability folders).

(d) Quantities of each type of substances disposed of (from DEA Forms 41 or other documents validating authorized disposition).

(e) Quantities of each substance on hand or in use.

(f) State whether the inventory and audit of records successfully accounted for all controlled substances. If all substances could not be accounted for, state what action was taken to resolve the discrepancies and any recommendations to improve accountability procedures.

(g) Evaluate the custodian's compliance with security, accountability, and control procedures.

4-7. Control of issue, return, and use

a. Issue or return procedures.

(1) Personnel authorized to sign out, possess, and use controlled substance training aids to conduct proficiency training will be designated in writing by the PM or security officer (21 CFR 1301.90).

(2) DA Form 4607-R will be used to maintain a record of all issues and turn-ins of training aids as discussed in paragraph 4-4e.

(3) When training aids are issued, the date, time of issue, training aid/container number, location where training is to be conducted, and the signature of the person receiving the training aids will be recorded on the form.

(4) When returned, the date, time of return, and the signature of the custodian receiving the aids will be recorded on the form along with any appropriate remarks.

(5) Training aids will be issued, returned, and secured during the same duty day, unless special authorization to do otherwise is granted in advance by the PM or security officer.

b. Control of training aids during use.

(1) All personnel authorized to conduct training using controlled substance training aids will be thoroughly briefed on the security requirements and personal responsibility for controlled substances before being allowed to participate in training. Briefings will be conducted at least annually thereafter. A written record for these briefings will be made and will be maintained on file.

(2) The person who was issued and is using controlled substance training aids for training is responsible for the control and security of the training aids. This person will not leave the immediate area where training aids are being used, and is responsible for retrieving and returning all training aids to the custodian.

(3) Unauthorized personnel will not be allowed to handle training aids. However, different authorized personnel should be involved in placing training aids rather than the same person, so that the dog genuinely responds on the training aids rather than the scent of the person placing the training aids (21 CFR 1301.90).

c. Temporary duty control procedures. Qualified narcotics/contraband detector dog handlers may be authorized to carry training aids when deployed TDY if the period of TDY exceeds five working days. Training aids which are authorized for use while TDY will be controlled as follows:

(1) The handler's TDY orders will specifically authorize the handler to possess the type and quantity of controlled substance training aids being carried.

(2) When the training aids are not in use at the TDY location, the training aids will be secured in a container that meets or exceeds the requirements of paragraph 4-6b. The container will be located in a secure storage room or area protected by IDS, or in a room or area which is always occupied by armed military or security police personnel.

(3) DA Form 4137 will be used for issue from and turn-in to the

TDY storage location, and to provide a continuous chain of custody record for the controlled substance training aids while the handler is TDY. The TDY handler is the only person authorized to receive the training aids being stored at the TDY location.

(4) If the dog handler must unavoidably interrupt travel between his or her home station and TDY location overnight, the handler will contact the nearest military installation PM or security officer, or the local civilian police agency, and request that the agency secure the training aids. A written receipt (DA Form 4137 may be used) for the training aids will be obtained when the training aids are surrendered by the handler for safekeeping.

(5) Training aids procured from the 341st Military Working Dog Training Squadron will not be transported outside the State or territories of the United States. Training aids obtained from CID or MP evidence custodians will also not be transported outside the geographic and jurisdictional boundaries of the host country, except as permitted by law, and by prior coordination with and the written consent of, any country involved. Transportation of training aids within the geographic and jurisdictional boundaries of host country is subject to the laws and coordinated agreements with the host government.

4-8. Form procurement and control

a. DEA forms.

(1) DEA Form 225 and other noncontrolled blank DEA forms may be obtained at any Field Division of the DEA, or by writing to the Registration Branch, Drug Enforcement Administration, Department of Justice, PO Box 28083, Central Station, Washington, DC 20005.

(2) DEA Form 225a will be mailed to each registered person approximately 60 days before the expiration date of the current registration. If DEA Form 225a has not been received within 45 days before the expiration date of the current registration, request DEA Form 225a by writing to the DEA Registration Branch at the address given above.

(3) Blank DEA order forms (DEA Form 222) are controlled and are issued with the DEA registration certificate. Reproduction of blank DEA order forms is prohibited (21 CFR 1305.05).

(4) DEA Form 223 is issued by DEA when the application for registration is approved.

(5) DEA Form 223 and DEA Form 222 will be secured in a locked security container under the immediate control of the PM or security officer, or of the individual whose signature is on the application for registration (DEA Form 225 or 225a) as the applicant. DEA Forms 223 and blank DEA Forms 222 will be secured separately from the controlled substance training aids/containers and the controlled substances accountability folders. DEA Form 223 and blank DEA Forms 222 will be inventoried at least quarterly by the applicant.

b. DA forms. DA Form 4607-R and DA Form 4608-R may be reproduced locally. Copies for reproduction purposes are located at the back of this book.

4-9. Use of synthetic drug training aids

a. The use of pseudo-cocaine or pseudo-heroin substances to train narcotics/contraband detector dogs is prohibited. No controlled scientific studies have been conducted by competent scientists which prove drug substitutes will adequately simulate the real drug. The use of real cocaine and heroin to train dogs to detect and respond avoids detection problems caused by the perfume effect (a substance mixed with splicing materials can produce a new odor). It also avoids real odor concentration problems (substitutes may not emit the same odor concentration as the real drug).

b. The use of pseudo-drugs to train detector dogs can be compared to the problem created when a dog that is trained to detect marihuana is assumed to be able to detect hashish. Although both substances contain tetrahydrocannabinol (THC), the THC exists in different concentrations. A dog trained to detect marihuana may not respond on hashish because of this difference. A properly trained

dog is therefore trained to detect and respond on both marihuana and hashish.

c. To maintain the proficiency of narcotics/contraband detector dog teams, real marihuana, hashish, heroin, and cocaine training aids will be obtained and used in both training and actual searches.

ATLANTA FIELD DIVISION ¹

Suite 200, United Family Life Bldg., 200 Houston St., N.E., Atlanta, Georgia 30303; 242-4401

Charleston Resident Office, Room 630, 334 Meeting St., Charleston, South Carolina 29403; 930-5209

Columbia Resident Office, Room 204, 1101 Laurel, P.O. Box 702, Columbia, South Carolina 29202; 677-5251

Columbus Resident Office, P.O. Box 1565, Columbus, Georgia 31902; 247-9787

Greensboro Resident Office, 2300 W. Meadowview Road, Suite 224, Greensboro, North Carolina 27407; 699-5203

Memphis Resident Office, 401 Federal Bldg., 167 N. Main St., Memphis, Tennessee 381031; 222-3396

Nashville Resident Office, A929, Estes Ke Fauver Bldg., FB-USCH, 801 Broadway, Nashville, Tennessee 37203 ¹; 852-5988

Savannah Resident Office, Suite C, 430 Mall Blvd., Savannah, Georgia 31406; 248-4288

Wilmington Resident Office, P.O. Box 4189, Wilmington, North Carolina 28406; 671-4513

BOSTON FIELD DIVISION ¹

G-64 JFK Federal Bldg., Boston, Massachusetts 02203; 223-2170
Bridgeport Resident Office, FB-USCH, 915 Lafayette Blvd., Bridgeport, Connecticut 06604; 643-4591

Burlington Resident Office, P.O. Box 327, Essex Junction, Vermont 05452; 832-6777

Concord Resident Office, Federal Bldg. & P.O., 55 Pleasant St., P.O. Box 1314, Concord, New Hampshire 03301; 834-4754

Hartford Resident Office, Room 628, 450 Main St., Hartford, Connecticut 06103; 244-3230

Portland Resident Office, 329 USCH Bldg., 156 Federal St., P.O. Box 451, Portland, Maine 04101; 833-3331

Providence Resident Office, 232 P.O. & Federal Bldg., Exchange Terrace, Providence, Rhode Island 02903; 838-4322

Springfield Resident Office, 1550 Main St., Rm. 408, Springfield, Massachusetts 01103; 836-9284

CHICAGO FIELD DIVISION ¹

1800 Dirksen Federal Bldg., 219 S. Dearborn St., Chicago, Illinois 60604; 353-7875

Fargo Resident Office, Room 257, 657 2nd N. Ave., Fargo, North Dakota 58102; 783-5331

Hammond Resident Office, 407 Federal Bldg., 507 Slate St., Hammond, Indiana 46302; 370-5321

Indianapolis Resident Office, Room 290, 575 N., Pennsylvania, Indianapolis, Indiana 462041; 331-7977

Milwaukee Resident Office, 228A FB-USCH, 517 E. Wisconsin, Milwaukee, Wisconsin 53202; 362-3395

Minneapolis Resident Office, 402 Federal Bldg., 110 S. 4th St., Minneapolis, Minnesota 55401; 725-2783

DALLAS FIELD DIVISION ¹

1880 Regal Row, Dallas, Texas 75235; 729-7151

Ft. Worth Resident Office, P.O. Box 17478, Ft. Worth, Texas 76102; 334-3455

Oklahoma City Resident Office, Federal Bldg., 200 N.W. Fifth St., Suite 960, Oklahoma City, Oklahoma 73102; 736-4141

Tulsa Resident Office, 333 W. Fourth St., Rm. 3335, Tulsa, Oklahoma 74103; 736-7611

El Paso District Office, 4110 Rio Bravo, Suite 100, El Paso, Texas 79902; 572-7920

Alpine Resident Office, P.O. Box 1282, Alpine, Texas 79830; 8-915-837-3421

Lubbock Resident Office, 1605 Broadway, Lubbock, Texas 79403; 738-7344

DENVER FIELD DIVISION ¹

316 U.S. Customs House, P.O. Box 1860, Denver, Colorado 80201; 327-3951

Cheyenne Resident Office, 8020 Federal Center, 2120 Capitol Ave., Cheyenne, Wyoming 82001; 328-2391

Salt Lake City Resident Office, 8416 Federal Bldg., 125 State St., Salt Lake City, Utah 84138; 588-4156

Albuquerque District Office, 1st National Bank Bldg., East 5301 Central Ave., N.E., Albuquerque, New Mexico 87108; 474-3285

Las Cruces Resident Office, P.O. Box 399, Las Cruces, New Mexico 88004; 571-8337

DETROIT FIELD DIVISION ¹

357 Federal Bldg., 231 W. Lafayette, Detroit, Michigan 48226; 226-7290

Cincinnati Resident Office, 7405 Federal Office Bldg., 550 Main St., Cincinnati, Ohio 45201; 684-3671

Cleveland Resident Office, Room 300, 601 Rockwell, Cleveland, Ohio 441141

HOUSTON FIELD DIVISION ¹

4299 San Felipe, Suite 200, Houston, Texas 77027; 526-4950

Corpus Christi Resident Office, 723 Upper North Broadway, P.O. Box 2443, Corpus Christi, Texas 78403; 734-3236

Galveston Resident Office, P.O. Box 2070, Galveston, Texas 77553; 527-6565

McAllen District Office, 3017 S. 10th St., McAllen, Texas 78501; 734-4562

Brownsville Resident Office, 2100 Boca Chica Blvd., Suite 305, Brownsville, Texas 78521; 734-8253

Laredo Resident Office, P.O. Drawer 2307, Laredo, Texas 78041; 734-6211

San Antonio District Office, 4th Floor, 1800 Central Bldg., 1802 N.E. Loop 410, San Antonio, Texas 78217; 730-5050

Austin Resident Office, 55 N. Interregional Hwy., P.O. Box 8, Austin, Texas 78767; 770-5631

Del Rio Resident Office, 132 Foster Drive, Del Rio, Texas 78840; 730-7241

Eagle Pass Resident Office, 342 Rio Grande, Room 102, Eagle Pass, Texas 78852; 730-7236

LOS ANGELES FIELD DIVISION ¹

Suite 800, 350 S. Figueroa St., Los Angeles, California 90071; 798-2650

Honolulu Resident Office, Room 3129, 300 Ala Moana Blvd., P.O. Box 50163, Honolulu, Hawaii 96850; 8-808-546-8391

Guam Resident Office, Suite 502C, 238 O'Hare St., P.O. Box 2137, Agana, Guam 96910; 9-011-671-472-7384

Las Vegas Resident Office, FB-USCH, 300 Las Vegas Blvd. S., P.O. Box 16023 Las Vegas, Nevada 89101; 598-6635

Reno Resident Office, 209 Bldg. 1, 4600 Kietzke Lane, Reno, Nevada 89502; 470-5617

MIAMI FIELD DIVISION ¹

8400 N.W., 53rd St., Miami, Florida 33166; 820-4870

Ft. Myers Resident Office, 2345 Union St., Suite D, Ft. Myers, Florida 33901; 826-3744/54

Jacksonville Resident Office, Suite 210, 4077 Woodcock Dr., Jacksonville, Florida 32207; 946-3566

Orlando Resident Office, 235 Whooping Loop, Altomonte Springs, Florida 32701; 820-6155

Panama City Resident Office, P.O. Box 1486, Panama City, Florida 32401; 946-5217

Tampa Resident Office, Suite 400, 700 Twiggs St., Tampa, Florida 33602; 826-2178

Ft. Lauderdale Resident Office, FB-USCH, 299 E. Broward Blvd., Ft. Lauderdale, Florida 33301; 820-7220

Marathon Resident Office, Room 215, 11400 Overseas Hwy., P.O. Box 1269, Marathon, Florida 33050; 350-5483

West Palm Beach Resident Office, Room 223, 701 Clematis St., West Palm Beach, Florida 33401; 350-7263

Tampa Airport Detail, Tampa, Florida 33401; 826-2176

San Juan District Office, 154 Housing Investment Bldg., 416 Ponce de Leon Ave., Hato Rey, Puerto Rico 00919; 8-809-754-6450

NEWARK FIELD DIVISION ¹

Federal Office Bldg., 90 Broad St., Newark, New Jersey 07102; 341-6060

Atlantic City Resident Office, P.O. Box AB, Northfield, New Jersey 08225; 483-4316

NEW ORLEANS FIELD DIVISION ¹

1661 Canal St., Suite 2200, New Orleans, Louisiana 70112; 682-3894

Baton Rouge Resident Office, Suite 118, 4560 North Blvd., Baton Rouge, Louisiana 70806; 687-0254

Birmingham Resident Office, Suite 520, 236 Goodwin Crest, Birmingham, Alabama 35209; 229-0621

Jackson Resident Office, 1501A Federal Bldg., 100 W. Capitol St., Jackson, Mississippi 39269; 490-4400

Little Rock Resident Office, Suite 850, One Union National Plaza, Little Rock, Arkansas 72201; 740-5981

Mobile Resident Office, Suite 216, 2 Office Park, Mobile, Alabama 36609; 537-2831

Shreveport Resident Office, 8A20A Federal Bldg., Shreveport, Louisiana 71102; 493-5078

NEW YORK FIELD DIVISION ¹

555 W. 57th St., Suite 1900, New York, New York 10019; 662-5151

Albany Resident Office, 746 Leo W. O'Brien Federal Bldg., Clinton Ave. & N. Pearl St., Albany, New York 12207; 562-3425

Buffalo Resident Office, Suite 300, 268 Main St., Buffalo, New York 14202; 437-4421

Rochester Resident Office, P.O. Box 14210, Rochester, New York 14614; 963-3180

Long Island District Office, Suite 1C-02, 1 Huntington Quadrangle, Melville, New York 11747; 667-1777

New York DEA Drug Task Force, Suite 1700, 555 W. 57th St., New York, New York 10019; 662-4991

JFK Airport Station, P.O. Box 361, Jamaica, New York 11430; 667-1666

PHILADELPHIA FIELD DIVISION ¹

10224 William J. Green Federal Bldg., 600 Arch St., Philadelphia, Pennsylvania 19106; 597-9530

Pittsburgh Resident Office, 2306 Federal Bldg., 1000 Liberty Ave., Pittsburgh, Pennsylvania 15222; 722-3390

Wilmington Resident Office, 5305-5307 J. Caleb Boggs Federal Bldg., 844 King St., Wilmington, Delaware 19801; 487-6184

PHOENIX FIELD DIVISION ¹

1980 Valley Bank Center, 201 N. Central, Phoenix, Arizona 85073; 261-4866

Yuma Resident Office, 370 S. Main St., P.O. Box 10151, Yuma, Arizona 85364; 764-6578

Tucson District Office, Tucson International Airport, 6904 South Plumer Ave., Tucson, Arizona 85706; 762-6845

Nogales Resident Office, 3970 Fairway Dr., Nogales, Arizona 85621; 764-1248

SAN DIEGO FIELD DIVISION ¹

402 W. 35th St., National City, California 90250; 895-5654

Calexico Resident Office, 38 W. 4th St., P.O. Box J, Calexico, California 92231; 894-2446

SAN FRANCISCO FIELD DIVISION ¹

Room 12215, 450 Golden Gate Ave., P.O. Box 36035, San Francisco, California 94102; 556-6771

Fresno Resident Office, Room 104F, 2202 Monterrey St., Fresno, California 93707; 467-5402

Sacramento Resident Office, 2941 B Fulton Ave., P.O. Box 255097, Sacramento, California 95825; 468-4205

San Jose Resident Office, Suite 200, 777 N. 1st St., San Jose, California 95110; 463-7235

SEATTLE FIELD DIVISION ¹

Suite 301, 220 W. Mercer, Seattle, Washington 98119; 399-5443

Anchorage Resident Office, 701 C St., Anchorage, Alaska 99513; 8-907-271-5033

Blaine Resident Office, 170 C St., P.O. Box 1680, Blaine, Washington 98230; 396-9420

Boise Resident Office, 2121 American Reserve Bldg., 2404 Bank Dr., Boise, Idaho 87305; 554-1620

Eugene Resident Office, 230 Federal Bldg., 211 E. 7th Ave., Eugene, Oregon 97401; 425-6861

Great Falls Resident Office, 111 14th St. South, P.O. Box 2887, Great Falls, Montana 59403; 585-1371

Portland Resident Office, 706 Terminal Sales Bldg., 1220 S.W. Morrison, Portland, Oregon 97205; 423-3371

Spokane Resident Office, USCH, 920 W. Riverside, P.O. Box 1504, Spokane, Washington 99201; 439-5342

ST. LOUIS FIELD DIVISION ¹

Suite 200, Chromallory Plaza, 120 S. Central Ave., St. Louis, Missouri 63120; 279-3241

Des Moines Resident Office, USCH, P.O. Box 1784, Des Moines, Iowa 50306; 862-4700

Kansas City Resident Office, Suite 300, 1150 Grand Ave., Kansas City, Missouri 641061; 758-2631

Omaha Resident Office, Federal Bldg., 215 N. 17th St., P.O. Box 661, Downtown Station, Omaha, Nebraska 68101; 864-4222

Sioux Falls Resident Office, P.O. Box 1109, Sioux Falls, South Dakota 57102; 782-4421

Wichita Resident Office, Room 505, 202 W. 1st St., Wichita, Kansas 67202; 752-6601

WASHINGTON D.C. FIELD DIVISION ²

Room 2558, 400 Sixth St., S.W., Washington, D.C. 20024; 724-7834

Charleston Resident Office, 22 Capital St., P.O. Box 1146, Charleston, West Virginia 25324; 930-5209

Norfolk Resident Office, Suite 320, 200 Grandby Mall, Federal Bldg., Norfolk, Virginia 23510; 827-3152

Richmond Resident Office, 400 N. 8th St., P.O. Box 10150, Richmond, Virginia 23240; 925-2871

Baltimore District Office, 955 Federal Bldg., 31 Hopkins Plaza, Baltimore, Maryland 212012; 922-4800

EL PASO INTELLIGENCE CENTER FIELD DIVISION

South 200, 2211 E. Missouri, El Paso, Texas 79903; 572-7942

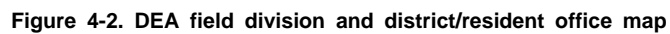
Notes:

¹ Field Divisions/Resident Offices that can assist in registration matters.

² Assistance capability at Baltimore to be transferred to Washington, DC on a date to be determined.

Figure 4-1. DEA field divisions and district/resident offices (Office, Address, and Telephone)

■ Anchorage, Alaska



DEA Form 225 (Dec. 1982) OMB No. 1117-0012

NEW

APPLICATION FOR REGISTRATION UNDER CONTROLLED SUBSTANCES ACT OF 1970

READ AND COMPLETE ALL APPLICABLE ITEMS
PRINT OR TYPE ALL ENTRIES

No registration may be issued unless a completed application form has been received (1301.21 CFR 21)

RETAIN COPY 3. Mail Orig. and 1 copy with FEE to:
UNITED STATES DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
P.O. Box 28083
CENTRAL STATION
WASHINGTON, D.C. 20005
For INFORMATION, Call: (202) 254-8255
See "Privacy Act" Information on Reverse

THIS BLOCK FOR DEA USE ONLY

ATTN: Provost Marshal
CITY: Fort Bridge STATE: Arizona ZIP CODE: 78901

REGISTRATION CLASSIFICATION: Submit Check or Money Order Payable to: DRUG ENFORCEMENT ADMINISTRATION in Amount specified for Activity checked below.

1. BUSINESS ACTIVITY: (Check ☒ one only; see NOTES on Instruction Sheet before checking)
☒ RESEARCHER - Fee \$ 5.00 ☐ ANALYTICAL LAB - Fee \$ 5.00 ☐ MANUFACTURER - Fee \$ 50.00 ☐ DISTRIBUTOR - Fee \$ 25.00
☐ DRUG SCHEDULES (Check ☒ all applicable schedules in which you intend to handle controlled substances.) Complete Item 9 if applicable.
☒ SCHEDULE I ☐ SCHEDULE II ☐ SCHEDULE III ☐ SCHEDULE IV ☐ SCHEDULE V
☐ NONNARCOTIC ☐ NARCOTIC

2. ☒ (E) Check this block if applicant is exempt from payment of Registration Fee: If checked, applicant's superior must complete Item 8.
☒ (Y) Check here if you require Order Form.

3. Supply any other DEA Registration Numbers for any class of business activity at the address shown on this application.

4. ☐ (E) Check this block if applicant is exempt from payment of Registration Fee: If checked, applicant's superior must complete Item 8.
☒ (Y) Check here if you require Order Form.

5. Supply any other DEA Registration Numbers for any class of business activity at the address shown on this application.

6. MANUFACTURERS ONLY (Item 15, Business Activities):
 Check Schedules & Category applicable in the boxes to the right. (Definitions on Reverse)
 A ☐ Bulk, Synthesizer-Extractor
 B ☐ Cottage Farm
 C ☐ Reseacher - Relabeler
 D ☐ Non-Human Consumption

7. ALL APPLICANTS MUST ANSWER THE FOLLOWING:
 (a) Are you currently authorized to manufacture, distribute, dispense, prescribe, conduct research, in instructional activities, or chemical analyses with, or otherwise handle the controlled substances in the schedules for which you are applying, under the laws of the State or jurisdiction in which you are operating or propose to operate? ☒ YES ☐ NO
 Current State License Number for the State: NA
 In which you are applying for Registration: NA
 (b) Has the applicant been convicted of a felony in connection with controlled substances under state or federal law? ☐ YES ☒ NO
 (c) Has the applicant ever surrendered a previous CSA registration or had a CSA registration revoked, suspended, or denied? ☐ YES ☒ NO
 (d) If the applicant is a corporation, association, or partnership, has any officer, partner, or stockholder been convicted of a felony in connection with controlled substances under state or federal law? ☐ YES ☒ NO
 (e) If the applicant is a corporation, association, or partnership, has an officer, partner, or stockholder surrendered a previous CSA registration or had a CSA registration revoked, suspended, or denied? ☐ YES ☒ NO

IF ANSWER TO QUESTIONS (b), (c), (d), or (e) is YES, include a statement using the space provided on the REVERSE of this part.

8. CERTIFICATION FOR FEE EXEMPTION (Complete only if Item 3 is checked)
 The undersigned hereby certifies that the applicant herein is an officer or employee of a Federal, State or local agency who, in the course of such employment, is authorized to obtain, dispense, or prescribe controlled substances or is authorized to conduct research, instructional activity or chemical analysis with controlled substances, and is exempt from the payment of this registration fee.

Signature of Certifying Official: *Alan T. Uniform* Date: *20 Apr 1984*
 Name of Institution or Agency: *U.S. ARMY*
 Title or Type Name & Title: *Major General, Commander, Fort Bridge, AZ*

9. DRUG CODE NUMBERS must coincide with the schedules requested. Listed below are the Drug Code requirements for each business activity:
 Analytical Lab - Not required to list drug codes
 Distributor - Schedule I, II, III, IV
 Manufacturer - Schedule I, II, III, IV
 In addition to codes furnished, bulk manufacturers (synthesizer/extractor) applicants MUST circle below those "Basic Classes" of controlled substances in Schedule I and II which they propose to "Manufacture in Bulk".

7360	9200	7370		

IF ADDITIONAL SPACE IS REQUIRED, USE A SEPARATE SHEET AND RETURN WITH APPLICATION.

10. SIGNATURE OF APPLICANT OR AUTHORIZED INDIVIDUAL:
 Signature of applicant or authorized individual: *John E. Law* Date: *202: 555-1234*
 Print or Type Name: *John E. Law* Applicant's Business Phone Number (Optional):
 Title: *Lieutenant Colonel, MPC, Provost Marshal*
 of the person signing on behalf of the applicant, E.g., President, Dean, Procurement Officer, etc.

Figure 4-3. Sample completed DEA Form 225—Schedule I

DEA Form 225 (Dec. 1982) OMB No. 1117-0012

NEW APPLICATION FOR REGISTRATION UNDER CONTROLLED SUBSTANCES ACT OF 1970

READ AND COMPLETE ALL APPLICABLE ITEMS
PRINT OR TYPE ALL ENTRIES

No registration may be issued unless a completed application form has been received (1901.51 CFR 21)

UNITED STATES DEPARTMENT OF JUSTICE
DRUG ENFORCEMENT ADMINISTRATION
P.O. Box 20083
CENTRAL STATION
WASHINGTON, D.C. 20005
For INFORMATION, Call: (202) 254-8255
See "Privacy Act" Information on Reverse

ATTN: Provost Marshal
CITY STATE ZIP CODE
Fort Bridge Arizona 78901

Commander

REGISTRATION CLASSIFICATION: Submit Check or Money Order Payable to: DRUG ENFORCEMENT ADMINISTRATION in Amount specified for Activity checked below.

1. BUSINESS ACTIVITY: (Check ☒ one only; see NOTES on Instruction Sheet before checking)
☒ RESEARCHER - Fee \$ 5.00 ☐ ANALYTICAL LAB - Fee \$ 8.00 ☐ MANUFACTURER - Fee \$ 50.00 ☐ DISTRIBUTOR - Fee \$ 25.00
☐ SCHEDULE I ☒ SCHEDULE II ☐ SCHEDULE III ☐ SCHEDULE IV ☐ SCHEDULE V

2. DRUG SCHEDULES (Check ☒ all applicable schedules in which you intend to handle controlled substances.) Complete Item 9 if applicable.
☐ SCHEDULE I ☒ SCHEDULE II ☐ SCHEDULE III ☐ SCHEDULE IV ☐ SCHEDULE V

3. ☒ (E) Check this block if applicant is exempt from payment of Registration Fee: If checked, applicant's superior must complete Item 8.
☐ (V) Check here if you require Order Forms.

4. Supply any other DEA Registration Numbers for any class of business activity at the address shown on this application.

5. CERTIFICATION FOR FEE EXEMPTION (Complete only if Item 3 is checked)
The undersigned hereby certifies that the applicant herein is an officer or employee of a Federal, State or local agency who, in the course of such employment, is authorized to obtain, dispense, or prescribe controlled substances or is authorized to conduct research, instructional activity or chemical analysis with controlled substances, and is exempt from the payment of this registration fee.

Signature of Certifying Official: *Alan T. Uniform* Date: *20 Apr 84*
Alan T. Uniform
Major General, Commander, Fort Bridge, AZ
Print or Type Name & Title

US ARMY
Name of Institution or Agency

6. DRUG CODE NUMBERS must coincide with the schedules requested. Listed below are the Drug Code requirements for each business activity:
Analytical Lab - Not required to list drug codes
Distributor - Schedule I
Manufacturer - Schedule I, II, III, IV, V
In addition to codes furnished, bulk manufacturer (synthesizer/extractor) applicants MUST Circle Below these "Basic Classes" of controlled substances in Schedule I and II which they propose to "Manufacture in Bulk".
Researcher - Schedule I and II (See Note B on Instruction Sheet)

9041									

IF ADDITIONAL SPACE IS REQUIRED, USE A SEPARATE SHEET AND RETURN WITH APPLICATION.

7. ALL APPLICANTS MUST ANSWER THE FOLLOWING:
(a) Are you currently authorized to manufacture, distribute, dispense, prescribe, conduct research, in instructional activities, or chemical analysis with, or otherwise handle the controlled substances in the schedules for which you are applying, under the laws of the State or jurisdiction in which you are operating or propose to operate? ☒ YES ☐ NO
Current State License Number for the State in which you are applying for Registration: NA
(b) Has the applicant been convicted of a felony in connection with controlled substances under state or federal law? ☐ YES ☒ NO
(c) Has the applicant ever surrendered a previous CSA registration or had a CSA registration revoked, suspended, or denied? ☐ YES ☒ NO
(d) If the applicant is a corporation, association, or partnership, has any officer, partner, or stockholder been convicted of a felony in connection with controlled substances under state or federal law? ☐ YES ☒ NO
(e) If the applicant is a corporation, association, or partnership, has an officer, partner, or stockholder surrendered a previous CSA registration or had a CSA registration revoked, suspended, or denied? ☐ YES ☒ NO

8. ANSWER TO QUESTIONS (b), (c), (d), or (e) IS YES, include a statement using the space provided on the REVERSE of this part.

John E. LAM 202: 555-1234
Print or Type Name Here - Sign Below Applicant's Business Phone Number (Optional)
Signature of applicant or authorized individual: *John E. LAM* Date: *20 Apr 84*
LIEUTENANT COLONEL, MPC, Provost Marshal
Type (if the applicant is a corporation, institution, or other entity, enter the TITLE of the person signing on behalf of the applicant, e.g., President, Dean, Procurement Officer, etc.,)

ATTACH CHECK HERE

Figure 4-4. Sample completed DEA Form 225—Schedule II

CONTROLLED SUBSTANCE ACCOUNTABILITY RECORD						
For use of this form, see AR 190-12; proponent agency is ODCSOPS						
ORGANIZATION/INSTALLATION		DEA REGISTRATION NO.		DEA FORM 22& NO.		
Provost Marshal, Fort Bridge, AZ		A 1111-0000		744560000		
The controlled substances received from this order were repackaged (or weight checked) as indicated below.						
ENTRY NO.	TRAINING AID/COM. TAINER NO.	WEIGHT AND CODE OF SUBSTANCE	WEIGHT AND TYPE OF CONTAINER	TOTAL WEIGHT OF TRAINING AID	WEIGHT CHECKED/ PACKAGED BY	DATE AND INITIALS
1	1-1-1	10g MJ	Nylon 8g Hose	18g	1LT James Behr	12 JUL 83 JLB
2	1-1-2	17g MJ	Cloth 5g Bag	22g	1LT James Behr	12 JUL 83 JLB
3	1-1-3	5g (seeds) MJ	Plastic 3g Bag	8g	1LT James Behr	12 JUL 83 JLB
4	1-1-4	168g MJ	Plastic 18g Bag	186g	1LT James Behr	12 JUL 83 JLB
5	1-2-1	6g HE	Red 4g Balloon	10g	1LT James Behr	12 JUL 83 JLB
6	1-2-2	8g HE	Metal 80g Box	88g	1LT James Behr	12 JUL 83 JLB
7	1-2-3	6g HE	Plastic 3g Bag	9g	1LT James Behr	12 JUL 83 JLB
8	1-3-1	4g CO	Plastic 3g Bag	7g	1LT James Behr	12 JUL 83 JLB
9	1-3-2	6g CO	Plastic 18g Bag	24g	1LT James Behr	12 JUL 83 JLB
10	1-3-3	10g CO	Metal 80g Box	90g	1LT James Behr	12 JUL 83 JLB
11	1-1-5	15g MJ	Cloth 5g Bag	20g	1LT James Behr	19 JUL 83 JLB

Dog Bit 19 JUL 83, 2g MJ
 lost. Rest (15g) repackaged into
 1-1-5 (Entry 2)
 Unusable seeds sent Registered
 Mail (234.547) to DEA 18 JUL 83
 DEA form 41 completed.
 Destroyed 16 JUL 83.
 DEA witnesses.
 DEA form 41 completed
 Dog cleared 14 AUG 83; lost 2g
 Rest (5.2g) to DEA by Reg.
 MAIL (254.778) 22 AUG 83
 See Entry 2

Code Key: Marijuana--MJ; Hashish--HH; Heroin--HE; Cocaine--CO

DA FORM 4608-R, Oct 84

Figure 4-5. Sample completed DA Form 4608—R

CONTROLLED SUBSTANCE TRAINING AID UTILIZATION RECORD							PAGE NO.	NO. OF PAGES
For use of this form, see AR 190-12; proponent agency is ODCSOPS							1	
CONTAINER/TRAINING AID NO.	ORGANIZATION/INSTALLATION	DEA REGISTRATION NO.	DEA FORM 222c NO.					
1-3-2	Provost Marshal, Fort Bridge, AZ	A 1111-0000	Z44560000					
DATE AND TIME OUT	WEIGHT OUT	RECEIVED BY (Signature, grade and title)	DATE AND TIME IN	WEIGHT IN	RECEIVED BY (Signature, grade and title)	REMARKS		
13 JUL 83 0930	24 g	Kelly Hall SSG TAG NCO	13 JUL 83 1700	24 g	Peter Jones SSG CUSTODIAN	PMD Parking Lot		
16 JUL 83 1000	24 g	Bul Souk 2LT TAG OFF	16 JUL 83 1600	24 g	Peter Jones SSG CUSTODIAN	Bldg # 236		
21 JUL 83 0800	24 g	Kelly Hall SSG TAG NCO	21 JUL 83 1530	24 g	Peter Jones SSG CUSTODIAN	Main Parking Lot		
26 JUL 83 0830	24 g	Bul Souk 2LT TAG OFF	26 JUL 83 1230	24 g	Robert Kane 1SG ALT CUSTODIAN	Airfield		
5 AUG 83 1130	24 g	Bul Souk 2LT TAG OFF	6 AUG 83 1630	24 g	Robert Kane 1SG ALT CUSTODIAN	PMD Parking Lot		
14 AUG 83 1015	24 g	Kelly Hall SSG TAG NCO	14 AUG 83 1415	23.2 g	Peter Jones SSG CUSTODIAN	Bldg 234 Dog closed; .8g lost Investigation initiated		
Report of findings of investigation mailed to Commander USAMBA on 16 AUG 83								
Remaining cocaine in 1-3-2 sent to DEA by Registered Mail (#234,778) on 22 AUG 83. DEA form #1 completed.								

DA FORM 4607-R, Oct 84

Figure 4-7. Sample completed DA Form 4607—R

For use of this form, see AR 190-12; proponent agency is ODCSOPS

ORGANIZATION/INITIATION

Provost Marshal, Fort Bridge, AZ

DEA REGISTRATION NO.

A 1111-0000

DEA FORM 272a NO.

Z44560000

The controlled substances received from this order were repackaged (or weight checked) as indicated below.

[illegible]

Code Key: Marihuana--MJ; Hashish--HH; Heroin--HE; Cocaine--CO

DA FORM 4808-R, Oct 84

Figure 4-8. Sample completed DA Form 4608—R (weight check)

Chapter 5 Explosives Training Aids

5-1. General

The proficiency of EDDs is a critical skill that depends on continual reinforcement through training. To maintain satisfactory proficiency (95 percent or better detection rate), EDDs must be given a minimum of 4 hours of explosives detection training each week.

a. Within safety limits, training should be conducted in the same or a similar environment to that which the EDD team will be required to work. Some examples of good training environments are barracks just after all occupants have left for training, post exchanges, commissaries, and theaters just after closing. This includes any other facility that will provide real or nearly real conditions, and that will not present an unreasonable safety hazard to personnel not involved in the training exercise. Detailed requirements to ensure the safety of personnel during training exercises are given later in this chapter.

b. In selecting facilities for training, consideration should be given to the structure of the building. Some buildings may be much more susceptible to high cost structural damage in case of an accidental explosion than others. Taking this factor into consideration may lead to selection of alternate facilities with relative little, if any, loss in training effectiveness or realism. For example, a commissary warehouse may be selected as a training site in place of the commissary. The same wide variety and concentration of odors will be present. Therefore, much of the effectiveness of performing the training in the commissary is maintained.

c. In selecting facilities to be used for EDD training, a plan should be developed in conjunction with local safety and engineer personnel. A listing of buildings or facilities to be used should be compiled. The selection process should take into consideration the personnel exposure or safety factors listed later in this chapter, the factors listed above, and the need to maintain EDD detection proficiency in varied surroundings (that is, in buildings with variation of distracting odors, floor surfaces, outside noises, and so forth). Once a plan is formed, the installation commander should be informed of, and approve, the list of buildings or facilities selected for use. The plan should include the projected frequency of training and safety precautions being taken. Included would be the following:

(1) Prior notification of, and coordination with, building or facility managers.

(2) Evacuation of area in which training is taking place.

(3) Compliance with provisions of safety precautions prescribed in this chapter.

5-2. Explosives used for training

a. A variety of explosives training aids are needed to maintain proficiency. Many different explosive compounds are in use today and the explosives used in homemade bombs may range from common household materials to the most sophisticated military or commercial chemical compounds. Nearly all explosives, however, have certain identifiable elements that are found in at least one of the explosives used for training aids. Dogs trained to detect these explosives training aids can therefore detect most other explosives. The handler must develop an understanding of what odors the dog is able to detect to be sure that the EDD is consistently trained to detect the explosives substance rather than containers, wrappings, tapes, and other material which may be present. The following types of explosives are authorized for training of EDD teams:

(1) Commercial dynamite.

(a) Gelatin.

(b) Ammonium nitrate.

(2) Military dynamite.

(3) Water gel (TOVEX).

(4) TNT (trinitrotoluene).

(5) Smokeless powder.

(6) C-4 plastic explosive.

(7) Detonating cord.

(8) Potassium chlorate.

(9) Sodium chlorate.

b. All of the explosives included in the list in a, above are contained in the explosive scent kit, and should be available to the EDD team for training. Each of these explosives should be used frequently enough to maintain the EDDs detection proficiency at 95 percent or better on each of the explosives. The general rule to follow is to use any type of explosive, varying the amount and type from day to day. Of the basic types of explosives to be used, C-4 plastic explosive has the strongest odor. This is followed by dynamite, smokeless powder, TOVEX, detonating cord, and TNT. The chlorates are a relatively new addition and their position in the odor spectrum has not been established.

5-3. Explosives characteristics

The effectiveness of the EDD team depends on the dog's ability to detect explosives substances. This ability can be greatly enhanced by the handler's knowledge of the characteristics of explosives, the source of the odor the EDD is trained to detect, and how explosives devices are constructed. The information provided here is intended to give only a general understanding of explosives. Handlers should use this information as a foundation for further study in other Army publications on explosives (field manuals and technical manuals) and related references.

a. *Smokeless powder.*

(1) Smokeless powder is the world standard propelling powder for small arms, cannons, and, in a slightly different form, some rockets. All low explosives currently used as propellants have a nitrocellulose base and are commonly referred to as smokeless powders. Various organic and inorganic substances are added to the nitrocellulose base during manufacture to give improved qualities for special purposes. Various commercial trade names or symbols may be used to identify the family of smokeless powders.

(2) Smokeless powders are produced by dissolving gun cotton (nitrocellulose) in a mixture of ether and alcohol to form a mass called colloid. The colloid has a consistency of melted glue and is squeezed into macaroni-shaped tubes that are subsequently cut in short lengths. The ether and alcohol used to dissolve the guncotton are evaporated, leaving a hard substance. The small cylindrical powder grains resulting from this process are generally used as rifle ammunition powders.

(3) Pistol powders, unlike rifle powders, do not generally have cylindrical grains. Instead, they are manufactured in the form of very fine, thin wafers, flakes, or balls. These shapes ensure the shorter burning time necessary for full combustion in weapons with short barrels. Shotgun powders are similar to pistol powders in that they burn more rapidly than rifle powders. Most shotgun powders are straight nitrocellulose in composition.

(4) Like black powder, smokeless powders vary widely in both form and color. The majority of rifle and pistol powders are black in color and are formed into rods, cylindrical strips, round flakes, or irregular grains. Shotgun powders may be translucent round or square flakes, orange to green in color, or may be black irregularly shaped granules. Smokeless powders of all types are sold in tin flasks, glass jars, plastic containers, and kegs of varying weights up to 25 pounds.

(5) Unconfined smokeless powder burns with little or no ash or smoke and, when confined, its rate of burning increases with temperature and pressure. For this reason it is frequently used in the construction of pipe bombs. It should be noted that smokeless powder manufactured for use in small arms ammunition is usually glazed with graphite to facilitate machine loading and prevent the accumulation of static electricity. Many of these powders are as sensitive to friction as black powder. Therefore, the precautions used in handling black powder should be observed for smokeless powder.

(6) The age of the smokeless powder can also affect the dog's detection ability. The ether base dissipates with age when the powder has been exposed to the open air. Therefore, training aids should be made using both old and new smokeless powder.

b. *C-4 plastic explosive.* Composition C-4 is a composite explosive containing 91 percent Research Department Explosive (RDX) and nine percent nonexplosive plasticizers. C-4 has a greater shattering effect than the earlier C-3. C-4 is white to light brown in color and does not stain the hands. C-4 is often used in letter bombs because it can be shaped easily to fit the letter. Even though only a small amount of C-4 is used, it has such a strong odor that detection should be easy for the dog when searching mail. C-4 is available as a block demolition charge in the M5A1 2 1/2-pound block or the M112 1 1/4-pound block. Additional information on this and other explosives can be found in FM 5-25.

c. *Detonating cord.*

(1) Detonating cord consists of a core of PETN or RDX in a textile sheath, waterproofing materials, and plastics. Detonating cord will detonate at a speed of approximately 21,000 feet (or four miles) per second. Various colorings and textiles patterns are used to identify different explosive strengths and types of detonating cord. Detonating cord resembles safety fuse, is approximately the same diameter, and is supplied in rolls or coils. Detonating cord is nearly always distinguishable by its white or pink powder core. Detonating cord is manufactured under brand names such as Primacord, Primex, Detacord, Detonating Fuse, Cordeau Detonant, or Cord Tex.

(2) Most of the common detonating cords contain 50 to 60 grains of PETN per foot. A white crystalline powder, PETN is an extremely powerful explosive. Although pure PETN is white, the addition of desensitizers may slightly change its color to light gray. Detonating cord which contains up to 400 grains of PETN as a core load is dyed pale green in color. There are other lower energy detonating cords designed for specific applications, especially for operations in developed areas where a reduced noise level is desired.

(3) Another special type of detonating cord is used in operations where the ability to withstand high temperature is required, such as oil well jet perforating. This type of detonating cord has a black nylon or synthetic rubber outer sheath and the explosive core is 70 to 80 grains of RDX per foot. The RDX core load is pink. RDX is used because it can be exposed to crude oil and well fluids at high pressure and temperature (up to 325 degrees Fahrenheit) for as long as 2 hours without deterioration or detonation.

(4) Detonating cord is used with high explosives in the same way as blasting caps. Detonating cord may be tied around, threaded through, or knotted inside explosives to cause them to detonate. Detonating cord is also used when a simultaneous detonation of a number of explosive charges is planned, and when it is not practical to use electrical circuits for this purpose. A single line of detonating cord can be laid out from the firing point in a path that will pass near all of the explosive charges. From this main line shorter lengths of detonating cord are attached to the charges. A blasting cap is attached to one end of the main line of the detonating cord to initiate detonation of all the charges simultaneously.

d. *TNT.* TNT is the most common military explosive. Alone or as part of a composite explosive, TNT is used widely as a booster charge, bursting charge, and demolition charge. TNT is a standard explosive that serves as a basis for rating other explosives. The TNT most likely to be found will be in 1/4-, 1/2-, or 1-pound blocks. When TNT is removed from its cardboard container, it is light yellow brown in color. TNT gradually turns dark brown after several days exposure to sunlight. Some TNT also may be gray in color due to the addition of graphite during manufacture.

e. *Water gels (TOVEX).* Water gels, or blasting slurries, are a new commercial group of blasting agents. These consist of nitrocellulose mixtures, with or without TNT, in a gel-like substance. Powdered metals, such as aluminum may be added to increase their performance. Water gels can be poured into irregular or wet bore holes to fill all available space with explosive. Most water gels require an explosive booster or primer for detonation. Some water gels also are being manufactured that can be detonated by using a blasting cap. Water gels may be packaged in plastic bags, 1 1/2 to 8 inches in diameter, or may be delivered to the blasting site by special pump trucks.

f. *Military dynamite.*

(1) Military dynamite is a composite explosive which consists of 75 percent RDX, 15 percent TNT, five percent SAE 10 motor oil, and five percent flour. When removed from its wrapper, military dynamite is a buff colored granular substance which crumbles easily and is slightly oily to the touch. It does not cause the headaches which are a typical side-effect for personnel who handle commercial dynamites.

(2) Military dynamite is used as a substitute for commercial dynamites in military construction, quarry work, and demolitions. It is equivalent in strength to 60 percent straight dynamite. Since it contains no nitroglycerin, military dynamite is safer to handle, transport, and store than commercial dynamite. Military dynamite is relatively insensitive to heat, shock, friction, or bullet impact.

(3) Military dynamite is packaged in standard dynamite cartridges. The cartridge may be marked either M1, M2, or M3 depending on the cartridge size only. All military dynamite detonates at about 20,000 feet per second.

g. *Commercial dynamites.* Commercial dynamites include straight dynamites, ammonia dynamites, gelatin dynamites, and ammonia gelatin dynamites.

(1) The explosive base of straight dynamite is liquid nitroglycerin absorbed in a mixture of various carbon-rich materials, such as wood pulp or ground meal. Sodium nitrate is added primarily to supply oxygen for complete combustion of the carbon-rich materials and increase the strength of the explosion. When removed from its wrapper, straight dynamite will generally be light tan or reddish-brown in color. While the texture of straight dynamites may vary, they are usually loose, slightly moist, oily mixtures similar to a mixture of sawdust, clay, and oil. Straight dynamites are manufactured and graded in ranges from 15 to 60 percent.

(a) The nitroglycerin gives straight dynamite a heavy, pungent, sweet odor. Breathing straight dynamite fumes, even for short periods of time, will usually cause a very persistent and severe headache. Nitroglycerin liquid and vapors are quickly absorbed by the body and enter the bloodstream producing the headache. Although aspirin and other pain relievers have little effect on such headaches, some relief may be obtained by drinking strong black coffee or caffeine citrate. Personnel in constant contact with nitroglycerin usually develop some immunity from the headaches. This immunity, however, can be maintained only by almost daily contact.

(b) Straight dynamites are rarely used in general blasting work because they are highly sensitive to shock and friction, and they are highly flammable. When detonated, they produce toxic fumes which make them unsuitable for use underground or in confined spaces. Because of their nitroglycerin content, straight dynamites are the most hazardous of the dynamites to handle and store. Boxes or sticks of dynamite in storage must be periodically turned over to prevent the nitroglycerin from settling to the bottom and leaking out of the dynamite stick. Any dynamite that appears to be deteriorating or leaking an oily substance should be moved only by properly trained EOD personnel.

(c) A form of straight dynamite that is widely used in commercial blasting operations is called ditching dynamite. Ditching dynamite is manufactured in a 50 percent grade in sticks 1 1/4 inches by 8 inches and is used for blasting ditches. If soil conditions are right, ditching dynamite will detonate by propagation. This eliminates the need for individual priming of each charge with blasting caps or detonating cord. A principal characteristic of ditching dynamite is its relatively high detonation velocity of almost 17,000 feet per second. This rapid detonation produces a powerful shock wave and good earth shattering effect.

(2) In the manufacture of ammonia dynamites, ammonium nitrate replaces a portion of the nitroglycerin. This substitution produces a dynamite which costs less and which is less sensitive to shock and friction than straight dynamite. Ammonia dynamite has a lesser shattering effect and, therefore, is more suitable for quarry operations, stump or boulder blasting, and hard pan gravel or frozen earth blasting. Because of its ability to move or dislodge objects, ammonia dynamites are probably the most widely used explosives of the dynamite family. Ammonia dynamites are generally made in

strengths from five to 70 percent with detonation velocities ranging from 3,600 to 13,000 feet per second. When the wrapper is removed, ammonia dynamite will appear light tan to light brown in color and will have a pulpy, granular, slightly moist, oily texture. It has the same odor as straight dynamite because of its nitroglycerin content, and may also produce severe headaches after short periods of contact.

(3) Gelatin dynamites have a base of water resistant "gel" made by dissolving or colliding nitrocotton with nitroglycerin.

(a) The gel varies from a thick viscous liquid to a tough rubbery substance. Gelatin dynamite is neither hygroscopic nor desensitized by water, and therefore avoids two of the disadvantages of ammonia dynamite. Since it is insoluble in water and tends to waterproof and bind other ingredients with which it is mixed, gelatin dynamite is well suited for all types of wet blasting work. Because of its density, it is also used extensively for blasting very hard, tough rock or ore.

(b) Gelatin dynamites are manufactured in strengths from 20 to 100 percent. Gelatin dynamite will also detonate at two velocities. Unconfined, the lower rated strengths will detonate at about 7,000 feet per second. Confined, gelatin dynamites will detonate at approximately 13,000 feet per second. Detonation velocities up to 23,600 feet per second are available. Semi-gelatin dynamites have characteristics that fall between those of ammonia dynamites and ammonia-gelatin dynamites.

(4) Ammonia-gelatin dynamites have most of the characteristics and qualities of gelatin dynamites. A portion of their strength is provided by using less costly ammonium nitrate. Ammonia-gelatin dynamites are manufactured in strengths of 25 to 90 percent, with detonating velocities ranging from about 7,000 to 23,000 feet per second.

h. Dynamite detonation. All dynamites may be detonated using either electric or nonelectric blasting caps or detonating cord. Since blasting caps are extremely sensitive, a hole is made in the dynamite stick before the cap is inserted. A blasting cap crimper tool has a pointed handle, and is usually used to prepare dynamite for insertion of the blasting cap.

i. Ammonium nitrate.

(1) Ammonium nitrate is one of the least sensitive and most readily available main charge high explosives. It ranges in color from white to buff-brown, depending on its purity, and has a salty taste. Colored dyes may be added to aid identification. Ammonium nitrate is usually found in the form of small compressed pellets called prills. It is used extensively as a blasting agent or as a cratering charge, and as an ingredient in the manufacture of some dynamites. Ammonium nitrate is commonly used as a fertilizer.

(2) Even a high explosive grade of ammonium nitrate generally needs a booster for detonation. For cratering charges, TNT is used as the booster. RDX or pentolite boosters or primers are often used for commercial applications. The detonation velocity of ammonium nitrate ranges from 3,300 to 8,200 feet per second. Ammonium nitrate absorbs moisture easily (hygroscopic) and will lose power and sensitivity as its moisture content increases. As a result, ammonium nitrate is usually packaged in some type of waterproof container.

j. Sodium chlorate and potassium chlorate. Both sodium chlorate and potassium chlorate are substances which are frequently being used in improvised explosive devices (homemade bombs). These chlorates are available as a pharmaceutical or from a chemical supplier. The strength and odor is affected by exposure to air or moisture, so most explosive devices made using chlorates will be packaged in waterproof materials. For training, the chlorates should never be mixed with each other or with other substances. Chlorates used for training will need to be replaced frequently (about every three months) because of their exceptionally rapid loss of potency (odor and strength).

5-4. Procurement of explosives training aids

a. Procurement. Procurement of explosives training aids is the responsibility of the installation PM, security officer, or the MP unit commander. The source of training aids and the procedures for

obtaining explosives training aids will be established before the request for authorization of EDDs is submitted. Arrangements need to be made with the installation activity having installation responsibility for procurement and storage of explosives, and with the nearest EOD unit. Army installations or activities with authorized and assigned EDD teams are authorized to procure and issue the explosive scent kit which contains the items listed in paragraph 5-2 for the purpose of providing explosives training aids for proficiency training of MP EDD teams.

b. Inventories.

(1) Inventories will be made:

(a) Monthly.

(b) When a new explosives training aid custodian is appointed.

(c) When an explosives training aid is not accounted for at the conclusion of the daily training session, lost from storage or when there has been a breach in security of the storage room or storage container.

(2) Monthly inventories will be conducted by a disinterested person (anyone not assigned to or with direct responsibility for the installation MWD program) in grade E-7 or above, who is appointed by the PM or security officer, or by the installation or activity commander. Inventories which are required because of losses or breaches of security will also be conducted by a disinterested person.

(3) Change of primary custodian inventories will be joint inventories between the old and new custodian.

(4) An inventory will account completely for all quantities of explosives training aids maintained as training aids and will be a complete audit of the accountability records pertaining to those substances. Only those records that are active and those that have not been audited previously need to be audited. The person conducting the inventory will positively account for all quantities and types of explosives training aids by verifying the previously established audit trail.

(5) The person conducting the inventory will prepare a report for the PM or security officer or other appointing authority. A copy of the report will be maintained with the explosives training aids folders in a secure files storage area. Inventory reports will be maintained for at least two years from the date of the report.

(6) Inventory reports will include the following information:

(a) Date of inventory and the inclusive dates of all controlled substances accountability records included in the inventory.

(b) Name, rank, and unit of the person conducting the inventory. Include a copy of any written appointing document for disinterested persons or the appointing document for a new custodian.

(c) Quantity of each type of explosive received.

(d) Quantities of each explosive disposed of or destroyed.

(e) Quantities of each explosive on hand or in use.

(f) State whether the inventory and audit of records successfully accounted for all explosive aids. If all explosives could not be accounted for, state what action was taken to resolve the discrepancies and any recommendations to improve accountability procedures.

(g) Evaluate the custodian's compliance with security, accountability, and control procedures.

5-5. Cutting training aids

Explosives training aids issued for individual team training will not exceed the following quantities:

a. Commercial dynamite or military dynamite—one stick per training aid. Use a normal manufactured configuration. Do not cut dynamite. Size and weight may vary between types and brands of dynamite.

b. TNT—no more than 16 ounces per training aid. Use a normal manufactured configuration. Do not cut TNT.

c. Smokeless powder—no more than 16 ounces per aid. Smokeless powder may be removed from the container and repackaged into other containers as necessary. Preparation should be carried out in a suitable remote location.

d. C-4 plastic explosive—no more than 20 ounces per aid. Use a

normal manufactured configuration. If cutting or dividing is necessary, only qualified munitions or EOD personnel should do the cutting or dividing.

e. Detonating cord—no more than 10 feet per training aid. Detonating cord may be cut with a knife.

f. Potassium chlorate and sodium chlorate—30 grams (or one ounce) per aid. The portion of the chlorate not being used should be left in a tightly closed storage container. The training aid used will be stored separately to avoid contaminating the remaining chlorates.

5-6. Storing explosives

Explosives must be stored in vapor proof containers in facilities that meet the requirements of AR 385-64. The security requirements for explosives are contained in AR 190-11. AR 710-2 and AR 740-26 prescribe inventory, accountability, and issue procedures.

5-7. Issue and turn-in procedures

a. Explosives and explosives training aids will only be issued to those individuals who have received the explosives safety training required in AR 190-12. All personnel who are authorized to receive and handle explosives training aids will be designated in writing by the PM, security officer, or unit commander.

b. DA Form 581 (Request for Issue and Turn-in of Ammunition) will be used for requesting, receipting for, and turning in explosives used for training. Local procedures will be established to ensure that all quantities of explosives issued for training are all returned to secure storage. Thefts and/or losses will be investigated as required by AR 190-11.

c. Only the amount of explosives needed for that day's training will be issued.

5-8. Vehicle transportation requirements

Explosives are transported only in Government vehicles meeting the criteria of TM 9-1300-206 and/or AR 55-355, as appropriate. Vehicles must be certified as safe for explosives transportation by explosives safety personnel.

a. Before each use, the driver of the vehicle being used to transport explosives will inspect the vehicle to be sure it is in good mechanical condition and that all safety equipment is in working order. This inspection includes the following:

(1) The vehicle must have two approved Class B/C (CO₂ or dry chemical) fire extinguishers that are fully charged. One extinguisher is mounted on the outside of the vehicle on the driver's side and the other on the inside of the cab.

(2) All electrical wiring must be in good condition and all connections properly attached.

(3) Fuel tanks and fuel lines will be secure and free of leaks.

(4) Brakes, tires, steering and other equipment should be in proper working order. Tire inflation pressure should be checked and adjusted if necessary.

(5) Exhaust system will be free of oil, grease, and fuel.

(6) "Explosives A" placards will be mounted on the sides, front, and rear of the vehicle (and/or trailer).

b. Each type of explosive should be transported in a separate closed container. Containers should not be metal or other material that would fragment. Paper, cardboard, or light wood should be used. Each container must be marked to show the type of explosive in it.

c. Explosives are only transported in the cargo compartment of the vehicle. Personnel and MWDs will not ride in or on the cargo area with explosives.

d. Each explosives container should be immobilized so that it cannot shift during transit. Sandbags should be placed between containers and around the sides of the cargo compartment.

e. Wheel chocks should be used when the vehicle has stopped to prevent the vehicle from rolling from its stationary position.

5-9. Explosives safety

The consistent practice and observance of explosives safety requirements is as important to the credibility of the EDD team as the

maintenance of the team's proficiency. There can be no tolerance of unsafe practices because carelessness invites disaster. Before any individual is allowed to handle explosives, he or she must be fully knowledgeable of explosives safety requirements and should be able to demonstrate that knowledge in both training and real situations.

5-10. Explosives safety training

Each PM, security officer, or MP unit commander will ensure that personnel who will be involved in EDD training have been thoroughly trained in the safe storage, transportation, and handling of each type of explosive to be used as training aids before they are allowed to conduct or take part in this training. This training should be conducted by or with the direct assistance of EOD or explosives safety personnel. The initial explosives safety training will occur before the individual participates in any training where explosives are present. Training will be repeated at least annually thereafter. A written record of all explosives safety training conducted, including a list of personnel (by name) who have been trained, will be maintained for at least two years. Explosives safety training will include at least the following subjects as they relate to the types and quantities of explosives to be used in training.

a. Storage requirements.

b. Security requirements.

c. Vehicle transportation requirements.

d. Explosives handling and personnel precautions.

e. Extinguishing agent for explosives fires.

f. Fire department assistance.

g. Explosive ordnance disposal assistance.

h. Emergency actions.

i. Physical characteristics of each type of explosive used.

j. Functional characteristics of each type of explosive used.

k. Sensitivity to shock, heat, electricity, moisture, and corrosive agents of each type of explosive used.

l. Hazards related to each type of explosive used.

m. Procedures for using, placing and recovering explosives used in training.

5-11. Explosives safety requirements

a. Proficiency training is best done in the same environment in which actual searches would most likely be done. For example, public buildings such as post exchanges, commissaries, schools, banks, and warehouses provide a suitable training environment, as well as aircraft, vehicles, motor pools, petroleum storage areas, open areas around water towers, electrical power stations, and so forth. Training in these areas must be coordinated in advance with the users so as not to disrupt normal operations. Whenever possible, training should be done after normal operating hours but as close to the end of the operational period as possible to simulate building or area evacuation.

b. Training must not be done during an electrical storm or when an electrical storm is approaching. Always contact the local weather station or military weather detachment before training is conducted to be sure weather conditions will permit a safe training exercise. If an electrical storm comes up during training, all training activity will be stopped and explosives will be returned to the storage area. If time does not allow for safe return to the storage area, all explosives will be placed in an open unoccupied area at least 300 feet from occupied buildings, personnel, or equipment. The person in charge of the explosives will maintain surveillance over them during this period from at least 100 feet.

c. Before training starts, the fire department will be notified of the training location and the amount and type of explosives to be used. Proper fire symbols will be posted around the training area so that they are clearly visible from approach roads used by fire fighters. A class B/C type fire extinguisher will be readily available in the training area.

d. All persons handling commercial dynamite will wear rubber or plastic gloves to prevent the absorption of nitroglycerin into the skin. Dogs will not be allowed to pick up any explosive training aids in their mouths.

e. Smoking is prohibited within 100 feet of explosives used in training or within 100 feet of any actual search location.

f. All persons not actively involved in training exercises will be evacuated to a distance of at least 100 feet from the training area. Only the minimum number of personnel required to conduct the training will be authorized in the training area.

g. The total quantity of explosives used in any training event must not be more than 5 pounds of explosives. This quantity may be a mix of any of the types of authorized explosives.

h. Blasting caps, squibs, explosive detonators, or any type of initiating explosive or device may not be used for training when other explosives are being used. When training EDDs with initiating devices, only those devices (no explosives) may be present in the training area.

i. Explosives training aids will not be placed near any heat or spark producing source such as electrical wiring and outlets, radiators, heaters, heat vents, car engines, ash trays, or any other source of potential ignition.

j. Explosives training aids should not be placed inside metal containers that would fragment in case of accidental initiation.

k. When multiple training aids are used, they must be placed at least 50 feet apart to prevent propagation in case of accidental detonation.

l. Leave training aids in place only for the minimum time necessary for required odor dispersion, search, and recovery. Collect all training aids immediately after the training period.

m. Training aids must be kept under constant surveillance. **DO NOT LEAVE EXPLOSIVES UNATTENDED!**

Chapter 6 Health, Care, and Feeding

Section I Veterinary Medical Care

6-1. Veterinary services

a. The Army provides veterinary service for all MWDs as authorized by DOD Directive 6015.5, AR 40-1, AR 40-3, and AR 40-905.

b. At most locations, veterinary medical care is provided by the assigned installation veterinarian. When there is no assigned installation veterinarian, a veterinarian from a nearby military installation will be assigned responsibility for providing veterinary health services.

c. The PM, security officer, or the MP unit commander who has the MWD assigned or the military veterinarian will be responsible for approving all emergency civilian veterinary care when a military veterinarian is not available. If routine military veterinary care is not available, the attending Army veterinarian will establish procedures to ensure that adequate care is provided.

6-2. Veterinary responsibilities

a. The Surgeon General, U.S. Army, through the Army Veterinary Corps, provides professional veterinary medical support for the entire MWD program. This responsibility includes:

(1) Medical and surgical care at training facilities, bases, and installations.

(2) Sanitary inspection of kennel facilities.

(3) Professional review of plans for new construction and modification of kennels, support buildings, and sites.

(4) Prescribing an adequate feeding program.

(5) Instructing dog handlers and supervisors in all matters related to the health of MWDs.

(6) Conducting research to improve the MWD program.

b. The veterinarian provides treatment for the diseased or injured MWD at the kennel site or at the installation veterinary medical treatment facility. The veterinarian is responsible for equipping this facility and for providing medical and surgical supplies.

c. Physical examinations of dogs being offered to the military by sale or donation are given free of charge to make sure only healthy dogs are procured. MWDs also receive a physical examination before and after shipment.

(1) An examination is given just before shipment from one installation to another. A health certificate is issued for the state or country into which the dog is being shipped for PCS or TDY greater than 30 days. When the TDY period exceeds 30 days, the MWD will be accompanied by a health certificate prepared and signed by a veterinarian no more than 10 days prior to embarkation. If TDY location is in a different Army veterinarian area of operation, the gaining veterinarian will be notified prior to departure from the home station.

(2) An arrival examination is given as soon as possible, but not more than 30 days after arrival of a dog at a new location.

(3) The dogs are examined to detect injury or disease and support the safe shipment and continued good health of the dog.

d. Dogs are routinely immunized against contagious diseases. Immunizations begin at the procurement or training facility and are continued regularly throughout the dog's service life. The zoonosis control program refers to prevention and control of diseases and conditions common to man and other animals. Rabies is an example. The veterinarian will train MP personnel about control and preventive measures to minimize the possibility of getting diseases from dogs.

e. At least quarterly, the veterinarian inspects the kennel facility and area to make sure that proper sanitary standards are being maintained. The veterinarian ensures that insect and rodent control efforts are adequate, and that the general health of the dogs judged from appearance, grooming, and feeding is being properly maintained by the handler. The quarterly inspection also includes the following elements:

(1) Examine the kennel facilities for safety hazards and distractions that may interfere with the rest and relaxation of the dogs.

(2) Review the adequacy of the kennel structure (particularly for environmental conditions), and the adequacy of feeding and watering schedules. Make recommendations to help prevent disease and injury.

f. The veterinarian instructs handlers about dog health, care, feeding, and first aid. This instruction helps the handler to have a better understanding of the dog's health needs and improves the handler's ability to care for the dog.

g. The veterinarian is responsible for the MWD medical record and related information about examinations, immunizations, and treatment.

h. The veterinarian prescribes an appropriate feeding program based on the dog's health, the climate, and working conditions.

i. The veterinary officer is involved in the review of all plans for new kennel construction or kennel modifications. This is to ensure potential health and safety hazards can be corrected before construction begins.

j. Veterinarians may conduct medical research in support of the MWD program to improve the health, welfare, and effectiveness of the dogs.

Section II Diseases and Parasites

6-3. Disease prevention

The nature of the work being performed by MWD teams and the importance of this work to the Army mission makes the dog's continuing good health a matter of special attention. The veterinarian provides the professional expertise for treatment, prevention, and control of disease; however, only the handler is in daily contact with the dog. Handlers must be knowledgeable about the physical indicators of failing health in a dog, so prompt action can be taken to help the dog recover. Handlers must be familiar with their dog's normal body functions, such as temperature, appetite, and stool, and must know their dog's normal attitude. Changes must be reported to the veterinarian. Although handlers may not be able to recognize a

specific disease, they should be able to recognize the symptoms of illness and be able to describe the symptoms to the veterinarian.

6-4. Contagious diseases

a. Infectious diseases are caused by microscopic or macroscopic organisms. Contagious diseases that can be transmitted between humans and other animals are zoonotic diseases. Four of the more important contagious diseases of dogs are:

(1) *Canine distemper*. This is a widespread, highly contagious, and often fatal viral disease that occurs primarily in young dogs. The airborne virus is easily transmitted from dog to dog but does not affect humans.

(2) *Infectious canine hepatitis*. This is a widespread viral disease found most commonly in young dogs but also in older dogs that are not immunized. The mortality rate is not as high as from distemper, but recovery takes a long time. The virus is spread through the urine, mainly by the use of feeding and drinking utensils contaminated by urine. It does not infect humans.

(3) *Leptospirosis*. This disease, commonly known as "lepto," is caused by a spirochete and is fairly common.

(a) Animals other than dogs can be infected by the disease, and it can be transmitted to humans. It is spread through the urine, usually of dogs and rats. Therefore, in addition to immunization, it is essential that dogs do not consume contaminated food and water.

(b) Rodent control is important in preventing the spread of this disease since rats are the most common carriers.

(c) Where leptospirosis is known or suspected to exist, dogs should not be allowed to enter or drink surface water that may be contaminated by urine or dead animals.

(d) The possibility of human infection reinforces the need for personal cleanliness. Handlers must protect themselves from urine contamination when caring for sick dogs.

(e) Although vaccination will usually prevent the dog from exhibiting clinical signs of disease, vaccination of the dog against leptospirosis does not prevent the dog from shedding the infectious organisms in its urine. Therefore, it is possible to transmit the infectious organism to a human or unvaccinated dog that comes in contact with the infected dog's urine. Food sanitation practices are important in the control of this disease. Runs and kennels should be cleaned and sanitized daily.

(4) *Parvovirus*.

(a) This is an infectious and contagious viral organism which is shed in the stool, vomitus, and urine.

(b) There is a vaccine available which protects the dog against the disease.

(c) The clinical signs of the disease are vomiting (usually green in color) and bloody diarrhea. The dog is usually off food and water for a day prior to onset of the clinical signs.

(d) After onset of the vomiting and bloody diarrhea, the MWD could die within hours if veterinary medical treatment is not obtained. The animal should be taken to a veterinarian immediately.

(5) Dogs infected with any of the diseases discussed in this paragraph usually exhibit one or more of the symptoms listed below. When a dog shows such symptoms, or other changes in normal body functions, the veterinarian must be notified.

(a) Elevated temperature.

(b) Loss of appetite.

(c) Depression.

(d) Loss of weight.

(e) Loss of energy.

(f) Diarrhea.

(g) Vomiting.

(h) Coughing.

(i) Thick discharge from the eyes and nose.

(j) Muscle stiffness.

(k) Convulsions.

b. Rabies, like leptospirosis, is a zoonotic disease. The rabies virus in the saliva of infected animals is readily transmitted to humans through the bite wounds or contact of saliva with broken skin.

(1) Rabies affects all warm blooded animals. Most frequently infected are skunks, raccoons, bats, foxes, dogs, cattle, and cats.

(2) There are two stages of rabies seen in dogs:

(a) In dumb rabies, the most common stage of rabies seen in dogs, the animal will usually have the following signs: excessive drooling from the mouth, sit at one place with blank expression and howl, and unable to move jaw and, therefore, cannot swallow food or water.

(b) In furious rabies, the dog will have a sudden change in temperament or attitude, become very excitable and bite at all objects placed in front of him, appears to walk aimlessly about (loss of eyesight), and not able to swallow food or water. Rabid wild animals often lose their natural fear and will attack rather than retreat.

(3) Handlers must prevent contact between their dogs and wild or stray animals. Contact resulting in bites or scratches must be reported to the veterinarian. Extreme cautions must be used during the capture to prevent bites to personnel.

(4) If a handler is bitten by an animal, medical treatment should be given as soon as possible. In areas where rabies is endemic, handlers and other personnel with an increased occupational risk of exposure to rabies should receive prophylactic rabies immunization from their local medical facility.

c. Other contagious diseases for which vaccines do not exist, such as upper respiratory infections, pneumonia, and gastroenteritis, can infect dogs. Infected dogs may show symptoms including high temperature, loss of appetite, loss of energy, vomiting, diarrhea, and coughing. Any of these symptoms must be reported to the veterinarian.

6-5. Parasite infestations

Parasites can spread disease organisms to other dogs or humans. Dogs may serve as host to a large number of parasites and control of infestation is of prime importance to the dog's health.

6-6. External parasites

Parasites that live in or on the skin of the dog cause damage by sucking blood or actually eating the tissue. The dog responds by biting and scratching the irritated areas, which may lead to severe skin infections and may drastically affect the dog's working ability. The following paragraphs discuss the most common external parasites.

a. Ticks are common in many parts of the world. They suck blood from the dog and, when present in large numbers, may cause a serious loss of blood. Ticks can be observed standing still on the dog's body with their heads deep in the skin. Ticks spread diseases by sucking blood or tissue fluid from a diseased animal and then moving to another animal.

(1) Care is required in removing ticks since they may carry zoonotic disease. Inflammation of the dog's skin may result if all of the tick is not removed. The correct procedure for removal is to place the fingers or tweezers around the body of the tick and as close to the dog's skin as possible. The tick's head is then slowly withdrawn. Ticks deep in the ear canals must be removed only by veterinary personnel due to the danger of ear injury. Ticks should be disposed of by flushing down the nearest drain or immersion in alcohol. Personnel should always wash their hands after handling ticks.

(2) Ticks may be found in cracks in the floors and sides of the kennel, and in the grass and bushes of the training and working areas. They may live away from the dog's body as long as a year without having to return to the dog for a blood meal. To control ticks, the kennels, training areas, and working areas should be treated with insecticides. The veterinarian should assist with the selection and approval of the insecticides to be used for this purpose, because many insecticides are harmful to dogs.

b. Fleas torment the dog, irritate the skin, and spread disease. They crawl or hop very rapidly through the dog's coat. Like ticks, they are difficult to control since they do not spend all of their time on the body but live in cracks in the kennel and in grass around the kennels. Fleas also may transmit tapeworms from dog to dog. Control requires repeated individual treatment and kennel sanitation.

c. Lice (biting and sucking types) commonly affect dogs. Biting lice live off the dog's tissues; sucking lice suck blood. Both produce great irritation. Biting lice crawl over the skin and through the hair. Sucking lice are usually immobile, and stand perpendicular to the skin. The eggs of lice, called nits, are small, white or gray, crescent shaped objects fastened to the hairs. Lice, unlike fleas and ticks, can live only a short time when they are not on the dog's body. Control, therefore, requires treatment only of affected animals.

d. Mites of several types irritate the ear canal or produce mange.

(1) The ear mite lives in the ear canals and causes a severe irritation. The mites are small but are visible to the naked eye as tiny, white crawling specks. Affected dogs scratch at the ears and cock their heads to one side or shake them. Examination of the affected dog's ear canals usually reveals a large amount of dark colored waxy discharge.

(2) Mange mites live in the animal's skin. The sarcoptic mange mite can be transmitted to humans. Mange mites are too small to be seen by the naked eye, but a skin scraping of the infested area will reveal them under a microscope.

(3) Mites also spend their entire life on the dog. Control, therefore, depends primarily on treatment of the affected animals.

6-7. Internal parasites

Like external parasites, internal parasites (living in the body) irritate the tissues, rob the body of blood or essential elements of the diet, or interfere with specific body functions. Only part of the life cycle of internal parasites is spent in the dog's body. A knowledge of this life cycle, or the stages of development from egg to adult, is important in the control of parasites. The life cycles of several of the most commonly found internal parasites are discussed below.

a. Hookworms, one of the most harmful parasites, live in the dog's intestines. They are small and threadlike, 1/2 to 3/4s of an inch long. They suck blood and cause blood loss by tearing the intestinal wall.

(1) The adult worm lives in the dog's intestine, where eggs are produced by the female and passed in the dog's stools. Larvae develop from these eggs, and can infect the same or another dog. The larvae penetrate the dog's skin or are swallowed as the dog licks the ground or himself. The larvae pass directly into the lungs. Those reaching the lungs are coughed up and swallowed, reaching the intestine. Once in the intestine, they develop into adulthood hookworms, and the cycle begins again.

(2) Dogs with hookworms may have a variety of symptoms, depending on the severity of the infection. Membranes of the mouth and eyes may be pale, stools may be loose and contain blood, or the animal may lose weight. The veterinarian diagnoses the disease by microscopic examination of the animal's stools.

(3) Control of hookworms is done primarily by feeding rations with a chemical to prevent the worms from completing their life cycle. Other control measures include treating infected animals and keeping the area free of stools.

b. Roundworms also live in the intestine. They vary from two to eight inches in length.

(1) The life cycle of roundworms is similar to that of hookworms except the eggs do not develop into larvae until they have been swallowed by a dog. Adult roundworms rob the infected animal of essential nutrients in the diet and larvae produce an irritation as they travel through the lungs.

(2) Symptoms may include vomiting, diarrhea, loss of weight, and coughing. The diagnosis is made by finding the eggs in the stools. Occasionally, adult worms may be vomited or passed in a stool, in which case they may be seen by the handler.

(3) Control measures include treating the animal and good sanitation in the kennel area.

c. Whipworms are smaller than roundworms but larger than hookworms.

(1) The life cycle is very similar to that of the roundworm; however, the larvae do not travel to the lungs before becoming adults in the intestine of the infected animal.

(2) Symptoms include diarrhea, loss of weight, and paleness of

membranes of the mouth and eyes. Diagnosis is made by finding the microscopic eggs in the stool. Control measures are the same as for roundworms.

d. Tapeworms are long, flat, and ribbonlike. They have many segments and a head. The tapeworm attaches its head to the wall of the intestine. Several kinds of tapeworms may infect the dog's intestine.

(1) The life cycle of the tapeworm is rather complex. In one type of tapeworm, after the eggs have been passed in the dog's stool, they are eaten by the larvae of the dog flea. The larva develops when the adult flea is eaten by a dog. The larva enters the dog's intestine and develops into an adult tapeworm.

(2) The symptoms are usually not too noticeable, but may include diarrhea and loss of appetite or weight.

(3) Some types of tapeworms pass through the bodies of rabbits, mice, or squirrels during their life cycle. Dogs may become infected by eating a rabbit or other animal containing the tapeworm larvae.

(4) Often the eggs of the tapeworm cannot be detected by the veterinarian during stool examinations. However, segments passed by the infected dog may be seen in the stool or among the hairs in the dog's anal region. They are small, white objects about 1/4 of an inch long, and may be seen moving.

(5) Control measures require treatment of the infected animal, good sanitation in the kennel area, control of fleas, and not allowing the dog to eat animals that are likely sources of infection.

e. Heartworms are found in the heart and lungs rather than the intestine. These parasites are threadlike in appearance, are 6 to 11 inches long, and interfere with the dog's heart action and circulation.

(1) The adult worms in the heart produce larvae called microfilaria. They circulate in the animal's bloodstream where they may be picked up by mosquitoes, the insect responsible for the spread of the parasite.

(2) The larvae continue their development in the mosquito and then are injected into the dog's tissues when the mosquito feeds. The microfilaria travel to the dog's heart and develop into adults.

(3) Symptoms include coughing, loss of weight, difficult breathing, and a quick loss of energy. The disease is diagnosed by the veterinarian during a blood test. Medication is given to kill the adult worms and microfilaria.

(4) Heartworms in dogs are controlled by a chemical added to the food ration to prevent the worms from completing their life cycle. Other control measures are treatment of infected dogs by a veterinarian to prevent them from serving as sources of infection, and controlling mosquitoes in the area.

6-8. Noninfectious diseases of dogs

Many diseases affecting dogs are not caused by viruses, bacteria, or other infectious agents. Some noninfectious diseases are overheating, arthritis, bloating, chronic kidney disease, and allergy. The symptoms of a noninfectious disease may resemble those of an infectious disease or may be hardly noticeable. Gradual loss of weight, excessive water consumption, excessive urination, and obscure lameness are symptoms that may be hard to detect. A handler alerted by any abnormal changes in a dog should report the observation to the veterinarian.

Section III Medication and First Aid

6-9. Special medication

At times, a veterinarian prescribes special medication for a sick or injured dog, to be given separately or mixed with food. The handler must know how to administer these medications in both pill and liquid form.

a. When any foreign substance is placed directly into a dog's mouth, his first reflex is to spit it out. The handler must learn how to administer medication properly so that the dog is forced to swallow.

(1) To administer capsules or tablets, the handler places the fingers of the left hand over the muzzle and inserts the left thumb

under the lip and between the dog's upper and lower teeth right behind the canine tooth, pressing the left thumb against the roof of the mouth to open the dog's mouth.

(2) Place the capsule or tablet into the dog's throat at the extreme rear of the tongue to prevent the dog from spitting it out. The handler then quickly removes the hand, closes the dog's mouth, and gently massages the dog's throat. The entire procedure must be quick and smooth to allay the dog's apprehension and resentment.

b. Liquid medication is best given with the help of another person.

(1) With the left hand, the handler holds the upper and lower jaws together; with the right hand, the assistant pulls the dog's lips away from the teeth at one corner of the mouth. The dog's nose is then pointed slightly upward, forming a natural funnel by the lip, and the assistant pours the liquid into this funnel.

(2) In giving liquid medicine, elevate the head only slightly above the horizontal. If the head is raised higher, the dog has difficulty in swallowing. Give the dog adequate time for swallowing to prevent the liquid from getting into the trachea, nose, or lungs. Use extreme caution in giving oily liquids.

(3) If any signs of distress appear, such as coughing or struggling, allow the dog to lower his head and rest before proceeding. Do not give oral medications or any liquids if the dog is unconscious or cannot swallow.

6-10. First aid

a. Normally, the handler's early recognition of symptoms of illness or injury allows sufficient time to get assistance from a veterinarian. However, situations may arise when medical help is not immediately available. The seriousness of the incident may require that the handler take emergency actions to protect the life or health of the dog. The first aid instructions which follow are the most common used to save life, prevent further injury, and to reduce suffering from pain. In all emergency situations, notify the veterinarian as soon as possible so that the dog can receive professional medical attention.

b. First aid kits should always be available in the kennel area and at training sites. The handler should also carry a first aid kit as part of his or her equipment for the dog on all operational missions. The contents of first aid kits will be determined by the veterinarian. Any time items are used from the first aid kit, used items should be replaced with new items immediately.

6-11. Physical restraint

When a dog has been injured, the first consideration is to calm and immobilize the animal. Pain and distress, however, may cause the dog to respond to the handler in an unpredictable manner. The dog may not respond to verbal command and may attempt to bite the handler and anyone helping the handler. Whether to apply a muzzle or not depends on the nature of the emergency. If the dog is unconscious, shows any difficulty in breathing, or has suspected head injuries, a muzzle should not be used. Otherwise, a muzzle should be used for safety.

a. There are several types of muzzles, but the leather basket muzzle is the best and most comfortable. It allows free breathing, and causes the least alarm and apprehension. The dog can still inflict a wound while wearing this type of muzzle, so caution is required.

b. An improvised muzzle can be made using the dog's leash and is called a leash muzzle.

(1) To apply this muzzle, tighten the choke chain on the dog's neck by pulling the leash tightly with the right hand. Place the left hand, palm up, under the choke chain on the neck. Grasp the leash tightly as it passes through the palm of the left hand, wrap the leash once around the dog's neck, and bring it up and across the left side of the dog's head. Finally, wrap the leash twice around the muzzle and grab it tightly with the left hand.

(2) This muzzle may be used when the leather muzzle is not available or when it would not provide adequate safety. Do not use the leash muzzle when the dog is overheated, is having difficulty

breathing, or if there is an indication the dog may vomit. Do not leave it on for long periods in hot weather.

6-12. Fractures

Broken bones and fractures are potentially the most serious injuries because the dog will probably continue trying to move around. Movement must be prevented. Continued movement will only make the injury more painful and serious.

a. A handler should suspect broken or fractured bones if the dog has been hit by a vehicle, was injured while jumping or climbing, has been hit by a large projectile, and so forth. The symptoms of a break or fracture may be swelling, deformity, limited ability or inability to use a body part, irregular bone contour, or a bone sticking out of a wound.

b. If a fracture or break has occurred, immediately restrain the dog to prevent any possible injury to people and to minimize the possibility of further injury to the dog. Send for veterinary help and keep the dog quiet and warm to prevent shock. Unless absolutely necessary, do not move the dog until the veterinarian arrives. If a bone is sticking out of a wound and there is bleeding, attempt to reduce the bleeding using sterile gauze bandages. If bleeding is severe and gentle pressure will not stop the bleeding, apply firm pressure over the artery that supplies blood to the broken limb. Apply pressure carefully to avoid causing greater injury.

c. If the dog must be moved before veterinary assistance can be obtained, the area of the fracture should be immobilized before attempting to move the dog. This may be accomplished by using a solid object such as a board or stick as a splint.

(1) Gently bring the limb into as natural a position as possible, without moving the area around the fracture.

(2) Lay the support or splint along the limb in the most comfortable and natural position. Do not apply the splint directly over the open fracture.

(3) Secure the splint to the limb, firmly but gently, by tying a strip of cloth as far above the injury as possible. The strip of cloth must be applied above the joint immediately above the injury. Tie another strip of cloth as far below the injury as possible. The second strip must be applied below the joint immediately below the injury. If the break cannot be splinted so that the joint above and below the injury are immobile, follow the instructions in *d* below. Be careful not to restrict blood circulation by tying the splint too tightly.

(4) If practical, bandage the whole limb lightly, wrapping the entire splint and limb.

(5) Move the dog no further than absolutely necessary and avoid leaving the limb and splint without support even if the only support is a cushion or supporting hand.

d. If the fracture cannot be splinted, transport the dog on a firm litter made from board strips or a sheet of plywood large enough to permit the dog to lie comfortably.

6-13. Wounds

a. Bleeding must be quickly controlled, particularly wounds in the foot or leg which bleed freely. Bleeding may be controlled by applying pressure directly on the wound. Use a sterile bandage or a clean handkerchief, or pinch the edges of the wound with your fingers. As soon as possible, apply a pressure bandage.

b. If bleeding cannot be controlled by using pressure, use of a tourniquet may be necessary until a pressure bandage can be applied. Tourniquets may be improvised from a leash, belt, necktie, bootlace, or a piece of gauze bandaging material. A tourniquet is dangerous because, if not applied properly, it could stop all blood supply to the area below it and cause serious damage. Apply a tourniquet three or four inches above the wound (between the wound and the heart) with just enough pressure to control bleeding. When a pressure bandage can be applied, remove the tourniquet.

6-14. Burns

Serious burns seldom occur with animals. Most burns occur when an animal comes into contact with hot water, hot grease, hot tar, or other hot, scalding liquids. Dogs may also get electrical burns by chewing electrical wires. If a dog is trapped in a burning building, it

may suffer from smoke inhalation in addition to surface burns. Minor burns may be treated by applying cold water soaks or ice packs to the burn for approximately 20 minutes. The cold helps to reduce the pain. The hair around the burn should be clipped away and the burn should be washed gently with a surgical soap. Blot dry with sterile or clean soft gauze or cloth and then apply a topical antibiotic ointment. Protect the burned area from rubbing by applying a loose fitting gauze dressing.

6-15. Shock

a. Frequently an animal will go into shock after injuries to internal organs, excessive bleeding, or trauma. Shock can be recognized by the following symptoms:

- (1) A glassy look to the eyes.
- (2) Rapid or weak pulse, or rapid shallow breathing.
- (3) Body temperature begins to drop, and the lips and feet may feel cold.
- (4) Paleness of the membranes of the mouth and eyes.
- (5) Slow capillary refill time. To determine capillary refill time, press firmly against the dog's gums until they turn white. Release the pressure and count the number of seconds until the gums return to their normal color. If it is more than two to three seconds, the dog may be going into shock. Failure to return to the red-pink color at all indicates that the dog may be in serious trouble and needs immediate assistance.

b. If a handler suspects that a dog has internal injuries or is going into shock, request help from a veterinarian immediately. Keep the dog warm and quiet, and lower the dog's head to prevent possible brain damage. If it is necessary to move the dog, use a litter.

6-16. Artificial respiration

There are many conditions that may cause respiratory collapse (stop breathing). When this happens, do not panic. Follow the procedures listed below.

- a. Open the dog's mouth and check for any obstructions. Extend the dog's tongue and examine its pharynx.
- b. Clear the dog's mouth of any obstructions, blood and mucus, close the dog's mouth, and hold it gently closed.
- c. Inhale, then cover the dog's nose and mouth with your mouth.
- d. Exhale gently, do not blow hard. Carefully force air into the dog's lungs and watch for the dog's chest to expand. Repeat every five to six seconds or at a rate of 10 to 12 breaths per minute.

6-17. Snake bites

The bite of a poisonous snake can cause serious illness and death if not treated immediately. If a dog is bitten by a poisonous snake, keep the dog quiet and calm and request veterinary assistance or move it as quickly as possible to a treatment facility. Panic or exertion causes snake venom to move more rapidly through the bloodstream. If possible, kill the snake so it can be shown to the veterinarian. The handler should be careful not to be bitten or come into contact with the snake venom. Many bites occur on the face or neck of the dog. When this happens, remove the choke chain and loosen or remove the collar and muzzle. Swelling occurs rapidly after a snake bite, and this equipment may restrict breathing. Position the dog's head extended from its body to allow the dog to get maximum airflow. An ice pack applied to the bite area helps to slow the flow of blood and helps to keep the venom from spreading. A **TOURNIQUET SHOULD NOT BE APPLIED!**

6-18. Foreign objects in the mouth

A dog may get a stick or other foreign object in its mouth or throat. The dog may cough, gag, have difficulty swallowing, paw at the mouth, and drool saliva. Rabies may cause similar symptoms, so the handler must be careful. If the dog is having difficulty breathing, cautiously and gently open the dog's mouth. Look for any abnormal object in the throat, under the tongue, between the teeth, in the gums, or stuck to the roof of the mouth. Gently try to dislodge the object by moving it from side to side. If no object can be found or

the handler is unable to remove the object, request veterinary assistance.

6-19. Poisonous substances

There are many toxic agents (chemicals) a dog may come in contact with and/or ingest. These include insecticides, herbicides, rodenticides, antifreeze, and so forth. The symptoms or signs of poisoning vary. Unless the handler is certain the dog has eaten a poison, do not treat for poison. Occasionally, dogs have accidentally swallowed narcotics or explosives training aids. If the handler knows the dog has eaten a poison, narcotic, or explosive, take the following actions:

- a. Request veterinary assistance immediately.
- b. Determine the type and quantity of poison, chemical, narcotic, or explosive that has been swallowed. If any part of the substance or container is available, keep it for the veterinarian to examine.
- c. The kennelmaster should obtain a list of common poisons and initial first aid procedures for these poisons from the Army veterinarian. Handlers can then refer to the list at those times that a dog may be poisoned and the veterinarian is not immediately available. If such a list is not available and the Army veterinarian is not available, immediate contact with a civilian veterinarian should be made. Causing an animal to vomit is not recommended in all types of poisoning as it may cause more harm to the animal. Where vomiting is appropriate, the animal may be induced to vomit by placing one to two tablespoons of salt on the back of its tongue.
- d. Keep the dog quiet and warm until the veterinarian arrives.

6-20. Overheating

a. Overheating results when a dog is unable to eliminate body heat rapidly enough. This condition requires immediate action by the handler to save the dog's life. During hot, humid weather, a dog may easily become overheated during training, during operations, or while being transported. A body temperature of 105 degrees Fahrenheit or more, poor response to commands, weakness, unsteady movement, vomiting, difficult or labored breathing, convulsions, and collapse are all symptoms of overheating.

b. When the symptoms of overheating occur, carry the dog to the nearest shade and try to quickly lower the body temperature by running and sponging cold water over the dog's head, body, and legs. If a body of water is available, put the whole dog into the water, keeping the dog's head above water.

c. If it is possible to take the dog's temperature, more specific measures can be taken. If the dog's temperature is less than 107 degrees Fahrenheit and the dog is having no difficulty standing, placing the dog into an air-conditioned kennel or building and soaking the dog with tap water should be sufficient. If the dog's temperature is higher than 107 degrees Fahrenheit and/or the dog is having difficulty standing and/or the dog's mucous membranes are turning blue, more drastic actions are necessary. These would include the following:

(1) Immerse the body in a tub of ice water. The dog should be maintained up on its chest (sternal position) while in the tub. The depth of the water and ice mixture should be sufficient to completely cover the shoulders and back. The head must be held out of the water at ALL TIMES so that there will be no opportunity for water to be inhaled into the lungs. An ice pack can be placed on top of the head, and that portion of the neck not immersed can be massaged with ice water. Immersion of the animal into extremely cold water may cause the animal to go into shock (refer to para 6-15) or to stop breathing (refer to para 6-16).

(2) If an ice water bath is not immediately available, the dog should be soaked with ice water or an alcohol and ice water mixture until such a bath can be made available.

(3) Monitor temperature continuously. Stop cooling when temperature falls below 103 degrees Fahrenheit.

(4) If the temperature falls below 100 degrees, begin warming by drying and wrapping the dog with sheets and blankets. Remove heat when temperature goes above 101 degrees Fahrenheit.

(5) Continue to monitor the dog's temperature every 10 minutes for one hour after the dog has reached a normal body temperature.

(6) Do not let the dog overdrink. He should not consume more than one cup of water until he is calm and his temperature returns to normal.

6-21. Causes of bloat

Bloat is an acute stomach enlargement that may be due to gas, food, or water. It may occur if the dog is fed immediately before or after hard exercise, or when the dog is returned to his kennel after work or exercise and allowed to drink too much water.

a. An enlargement may be seen just behind the ribs, primarily on the left side. The dog will be restless and show signs of pain in the abdominal region. It will attempt to vomit or have a bowel movement. Breathing will be difficult or labored due to pressure from the enlarged stomach.

b. Handlers should notify the veterinarian and stop all watering and feeding. Walking may enable the dog to relieve himself through bowel movements or passing gas. Most cases require extensive treatment by the veterinarian.

c. To prevent bloating, dogs should not be fed within a two hour period prior to or after hard work or vigorous exercise. Giving small amounts of water during training or working in hot weather will prevent excessive thirst. For the first hour after working or training, only three inches of water in the bucket should be available. After this cooling-off period, more water may be given.

Section IV Care of dogs

6-22. Required sanitation

a. Cleanliness is one of the most important factors for good health of the MWD. The kennelmaster must enforce sanitary measures in and around the kennel area. A good standard of sanitation is the result of the cooperation of the handlers, kennelmasters, supervisors, and the veterinarian.

b. The veterinarian and the PM, security officer, or MP unit commander set the standard of sanitation. This standard must be maintained by each of the handlers and the kennelmaster.

c. Sanitation is one of the chief measures of disease prevention and control. The importance of disease control in a kennel facility cannot be overemphasized. The existence of a disease in one dog that might be passed on to other dogs must be the concern of every handler.

d. A disease that spreads through the kennels may seriously impair the effectiveness of the unit if a large number of animals become ill and have to be removed from duty. Disease control and sanitation cannot be separated. There are many ways to keep a good level of sanitation.

(1) The kitchen or food preparation area must be kept as clean as possible. Dogs may get diseases from food prepared with dirty hands or dirty utensils. To prevent disease, clean and sanitize the food and water utensils daily. Clean utensils immediately after each food preparation period. If canned foods are being fed for a special diet, the can opener must be cleaned after each use. Store food in rat-proof areas so that neither the food nor cans are soiled by rat urine or stools. The use of disinfectant procedures in the food preparation area may be required, but use must be approved by a veterinarian.

(2) Kennels must be sanitary, in a good state of repair, and thoroughly cleaned every day. Kennels should be disinfected at least once every week using only those disinfecting products approved by the veterinarian. Kennels also should be disinfected whenever an animal is removed from a kennel so that the kennel will be ready to be occupied by another animal.

(3) Stools are a common source of infection and must be removed from the runs as often as necessary. Before washing down concrete runs, remove the stools with a shovel to prevent them from splashing into adjacent runs, on the walls of the kennel, or on the dog. The method of disposing of stools depends on local conditions and the type of sewage system present. If stools must be carried

from the area in cans, the cans must be cleaned and disinfected after each use.

(4) The entire kennel area must be free of refuse and garbage that could attract rats and insects. Mosquito control measures must be used in ditches and swampy areas in the vicinity of the kennels. Disinfectants and disinfectant procedures must be used only with the approval of the veterinarian.

(5) One of the causes of bacterial skin infections and bacterial ear infections in MWDs is the high humidity in the kennels. For this reason, it is important that handlers, when cleaning the kennels, remove the animals from the runs prior to washing the run. Then they should squeeze the run to dry it prior to putting the animal back in the run.

6-23. Grooming and inspection

Grooming and inspection are essential to the dog's health and well-being, and must be done daily. The physical closeness between the dog and the handler during daily grooming helps to develop the strong psychological bond between handler and dog that is necessary to function as a team.

a. German shepherd dogs have a double coat of hair; the undercoat of soft, wooly hair, and the outer coat of stiff, water-resistant hair. Daily grooming is essential to the proper care of the dog's coat and skin.

(1) In grooming, give the dog a brisk rubdown with the fingertips moving against the grain. This loosens dead skin, hair, or dirt, brings it to the surface, and massages the skin. Brushing against the grain follows. Next, brush the coat with the grain to return the hair to its natural position. Finally, hand rub the coat with the grain. This distributes the oil and gives the coat a glossy appearance. Occasional combing helps, but in winter, it should be limited to avoid tearing out the undercoat.

(2) An occasional bath may be necessary, but may remove the oils that keep the skin soft, prevent drying and cracking, and make the coat water repellent. The veterinary officer advises on the frequency of bathing, the type of soap, and how to protect the dog's eyes and ears. Rinsing after the bath removes soap left in the coat that may become sticky, collect dirt, or cause skin irritation. After drying with a towel, the dog may be gently exercised to complete the drying. Do not bathe a dog in cold or wet weather unless it can dry in a warm place.

b. Daily inspection is part of the grooming period. During inspections, check each part of the dog's anatomy for signs or symptoms of illness or injury. After a short acquaintance, the handler knows how the dog should look and act when healthy, what is normal for the dog, how the coat looks, frequency of bowel movements, and eating habits. In daily inspection, this knowledge helps reveal anything abnormal, and if treatment begins early, the dog's recovery is more rapid.

c. Knowing the terms used to describe the dog's external anatomy enables the handler to read intelligently about the dog, to report symptoms of illness or injury accurately, and to understand the veterinarian's instructions. Figure 6-1 describes the parts of the dog's anatomy.

d. During inspection, the handler checks specific areas of his or her dog for symptoms of disease and injury.

(1) Illnesses are frequently accompanied by changes in the eyes and many illnesses affect only the eyes. Usually, a dog's eyes are bright and clear and the surrounding membranes have a healthy pink color. The small wedge-shaped membrane at the inner corner of the eyes is the nictitating membrane, or third eyelid. Usually, this covers a small part of the inner portion of the eye. The following are symptoms of illness or injury:

(a) Red or yellow discoloration of the membranes and whites of the eyes.

(b) Paleness of the membranes.

(c) White or yellow discharges.

(d) Cloudiness or other discolorations of the clear portion of the eyes (cornea).

(e) Puffiness of the lids.

(f) Lids partially or completely closed.

(g) Nictitating membranes that cover more of the eyeball than usual.

(2) The black pad at the end of the dog's nose is usually shiny and moist. If it is persistently dry and dull, this may be a symptom of illness. Other symptoms are watery, yellowish, or red-tinged discharge, sneezing, snorting, and pawing at the nose.

(3) The erect external portion of the ear is called the earflap. The vertical ear canal extends down the earflap to the opening of the horizontal ear canal. The horizontal canal leads to the inner ear. A small amount of brownish wax in the vertical canal is normal.

(a) A reddish discoloration, swelling, or large amount of discharge in the ear canal should be reported. Also, report a foul odor coming from the canals, shaking of the head, holding the earflap down, holding the head to one side, twitching the ear, scratching or pawing at the ear, and evidence of pain when the ear is touched.

(b) Dirt and wax can be removed from the inner part of the earflap, but have the ears checked by the veterinarian even when they appear only to need cleaning. Never probe into the ear canal.

(4) In dog's mouth, gums, and inner lips are a healthy pink. Teeth are firm and white. Symptoms of illness include paleness of gums, sores, persistent drooling, bloody saliva, gagging or pawing at the mouth, and a foul breath. Loose and broken teeth, tartar accumulations on the teeth, and objects lodged between the teeth are conditions to report.

(5) A well fed and groomed dog usually has a glossy coat and skin that is soft and pliable. The coat changes in appearance with the climate and season.

(a) The undercoat is thicker in cold weather, and shedding is noticeable in hot weather.

(b) Indications of skin trouble are reddening, scabbing, moist discharges, scratching, abnormal shedding, loss of hair in spots, dryness, and loss of pliability.

(6) The dog's feet are inspected for foreign objects, cuts and bruises, and abrasion of the pads. Nails should not touch the ground when the dog stands. Long nails interfere with the dog's work. Report this and any broken or split nails. The dewclaws are not worn down by contact with the ground and require cutting. Lameness is a common sign of foot or leg problems.

(7) Check the dog's legs for wounds, swellings, and sores. If the elbow callous becomes inflamed, report it to the veterinarian.

(8) In a male dog, the penis is located in a fold of skin known as the prepuce or sheath, where a small amount of greenish-yellow discharge is normal. If this discharge is present in large amounts, report it to the veterinarian. A bleeding prepuce should be reported immediately. The scrotum, the pouch containing the testicles, should be checked for swelling, reddening, or scabbing. In the female dog, the external genital opening is the vulva. Usually, there is no discharge, but reddening of the vulva, or the skin in that area, and a discharge should be reported.

(9) The opening from the rectum is the anus. Report any swelling or reddening of the skin in the area of the anus. On either side of the rectum near the anus is a small sac that is a frequent source of trouble. When the anal sacs are full or infected, the dog may bite at the area or slide along in a sitting position. Report these symptoms to the veterinarian.

(10) The dog's attitude is one of the best indications of its general health. If the dog begins to show undue nervousness, loss of vitality and energy, an increased desire for sleep, tiredness, or inattentiveness while on post or in training, report this to the veterinarian. Also report changes in appetite, thirst, breathing, vomiting, a very soft or watery stool, or blood in the vomitus or stool. Watch the dog when it is urinating or having a bowel movement to detect

blood in the urine or difficulty with the passage of urine or stools. If there is blood in the urine, notice whether it is in the first or last portion of the urine, or whether it is distributed throughout. Report increases or decreases in the frequency of urination and bowel movements.

(11) A dog's temperature is also an excellent indication of the animal's state of health. Usually, it is within the range of 101.0 to 102.0 degrees Fahrenheit.

(a) Variations frequently indicate an illness, although some variation in temperature may be normal; for example, following exercise or agitation. Consult the veterinarian when variations are found.

(b) The temperature is taken rectally, and the thermometer is held in the rectum from 2 to 3 minutes before reading. Lubricate the thermometer with soap or mineral oil to ease its insertion. As a safety precaution, muzzle the dog before taking its temperature.

(12) The kennel and run areas should always be checked for evidence of vomiting, abnormal stools, or bleeding.

6-24. Feeding dogs

MWDs require a diet that is significantly different from that of pet dogs. Their work demands much higher levels of energy and larger quantities of essential nutrients. Therefore, a special feed has been developed for these dogs. This food, Feed, High Caloric, Medicated, NSN 8710-00-403-4565, is commonly known as Maximum Stress Diet (MSD) and is procured through normal supply channels. MSD is a pellet size, dry dog food that can be fed directly from the container or mixed with water. It has measured amounts of medication against heartworm and hookworms. The amount fed depends on the weight of the dog.

a. MSD is packed in either metal or fiberboard cans sealed against moisture and contamination. Units should not keep more than a 30- to 60-day stock on hand at the kennel. Once a can is opened, it must be stored in a cool, dry location to protect against spoilage. If a can is opened and found to have an excessive amount of moisture or if it emits a foul odor, it is probably contaminated or spoiled and should not be fed to the dogs. Instead, return the can to supply for disposal.

b. Special diets may be procured and fed to individual dogs when the veterinarian determines that other than the standard diet is required. Normally, specially prescribed foods will be available from the local commissary.

c. Some dogs have been trained using a food reward schedule that also requires special food. Food reward is used only if a dog fails to respond to any other type of reward. Procure the special food through normal supply channels or by authorized local purchase.

d. Food other than MSD medicated should not be fed to MWDs except under the conditions described in b and c above.

e. The amount of MSD each dog should be fed depends on the dog's weight, amount of activity, and the climate. Local veterinarians determine the proper amounts to feed.

f. The veterinarian also prescribes the time of day each dog is to be fed. This depends on the dog's duty schedule and the schedule of other kennel activities.

g. After the prescribed feeding period, leftover food is disposed of within two hours and feeding pans are cleaned and put away. Never leave uneaten food in the kennel past the feeding period. The food spoils and, if eaten, makes dogs sick.

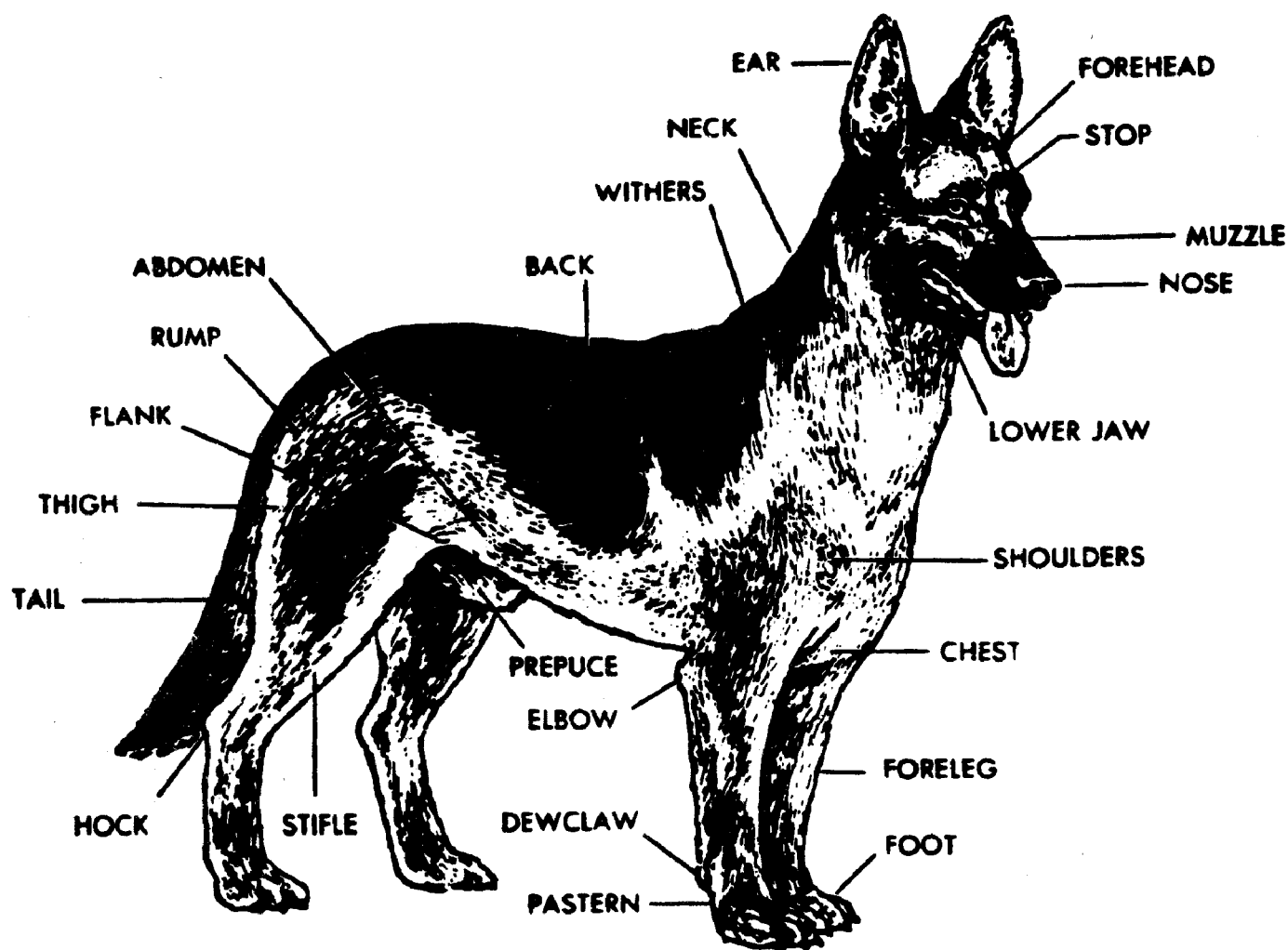


Figure 6-1. External anatomical parts

Chapter 7 Kennel Facilities

Section I Kennel and Support Facilities

7-1. Kennel requirements

A very important part of the decision process in determining whether to use or expand the use of MWDs by a unit or at an installation is the decision to construct kennel facilities. Standard kennel facilities are required for all MWDs, including the small breed detector dogs. Although there are instances where it has been necessary to quarter the small breed dog with the handler, this practice is only authorized until standard kennels can be constructed. The large breed dogs must always be quartered in either temporary or permanent kennels. Kennels provide the MWD with a standard, secure, sanitary facility that can be readily inspected. Kennels, for all MWDs which have been authorized or for which authorization is being sought, must be completed, inspected, and available for occupancy within 1 year after arrival of the dog(s) at the unit or installation. Failure to provide proper facilities for the dogs may result in reassignment of dog team assets and loss of the authorization for MWD teams. Kennel designs have been approved providing relatively low cost kennels for nearly any size MWD program. The designs in this chapter should be used as a guideline. Minor changes may be made to meet locally unique requirements.

7-2. Master planning

a. All proposed construction must be sited on the approved master plan for the installation. Development of the master plan is initiated by the installation commander working through the Installation Planning Board. When a kennel project has been validated by the Installation Planning Board as a new requirement and is not sited on the approved master plan, an individual site approval will be initiated. Each project will be consistent with the written goals and objectives, safety and environmental criteria, functional organization, land use, and infrastructure development of the installation. These procedures will be in accord with AR 210-20.

b. Kennels should not be located in built-up, busy areas of the installation. Although the dogs will tolerate some activity, activity which prevents them from getting adequate rest will affect their ability to perform effectively when required for duty. Also, when dogs are located in areas of moderate to high activity, the dogs will create a noise distraction to people working in the area. If the kennel must be located in a busy area, both visual and sound barriers will be necessary to minimize the distractions to the dogs.

c. It may be advantageous to build small kennel facilities near existing MP activities. Operations can be easier, handlers are more readily available, and the presence of the MP activity helps to provide at least some passive security for the kennels. However, the high level of activity normally associated with MP functions will necessitate the installation of visual and sound barriers around the kennel facility.

d. Kennels should be located as near as possible to existing

primary water, power, and sewer lines to reduce site preparation and construction costs.

e. Kennels, support facilities, exercise and training areas should all be located on the same site to reduce travel time and transportation requirements for daily kennel activities.

f. To keep noise levels around kennel areas at a minimum, do not build kennels near aircraft runways, taxiways, weapons firing ranges, motor parks, installation commercial activities, or other areas where the time weighted overall average sound pressure level for any 24-hour period exceeds 75 decibels. Similarly, kennels should not be located in the vicinity of nuclear, biological, chemical (NBC) training sites, or other areas that may present an environmental or health hazard to the dogs or the handlers.

g. The selected kennel site must have natural ground slope or be graded so that accumulation of standing water during wet weather is prevented.

7-3. Kennel components

a. A permanent kennel facility will normally consist of four major components. The kennel is the area in which the dogs are quartered and secured. The kennel support building provides an area for the operational, logistical, and administrative support functions for the kennels, the dogs, and the handlers. The training area provides a safe and secure area for the obedience, confidence, and proficiency training of the dogs. The obedience course, which will normally be located within the training area, helps the dogs to maintain agility, stamina, and general physical fitness while reinforcing the obedience and confidence training. The exercise area provides a safe, secure area for individual dogs to be exercised when the dog's handler is not available. A separate exercise area also prevents interference with handlers and dogs who need to use the training area.

b. The kennel support facilities should consist of the minimum necessary space to adequately support the operation of the kennel, and the care, feeding, and training of the assigned MWDs. Kennel support buildings normally will include the following elements:

(1) Food preparation room with counter, cabinets, sinks, refrigerator, stove, food cart, and storage racks.

(2) Food storage room with sufficient shelving to store a 30-day supply of food for the dogs.

(3) One office for the kennelmaster. Additional office space may be necessary depending on the size of the kennel facility and the number and types of MWD teams assigned. In very large kennels, separate office spaces may be provided for handlers of narcotic detector dogs, patrol dogs, and EDDs. This arrangement would give the kennelmaster and each of the functional teams with the same skills an area to maintain references and discuss operational matters.

(4) Latrine with sink, toilet, and shower.

(5) One large multipurpose room. The size of the room should be adequate for assembly of all the handler personnel authorized for the kennel. This room may be used as:

(*a*) An emergency examination and treatment area.

(*b*) A mission preparation room (ready room, briefing room, assembly area, and so forth).

(*c*) An administrative area where the kennelmaster or unit commander can conduct meetings, briefings, training classes, inspections, or other functions.

(6) Isolation kennels are required only for kennels housing more than 20 dogs, or where a veterinarian is not located within a reasonable traveling distance (25 miles). Adequate space should be provided in the multipurpose room for a temporary prefabricated isolation kennel, if that becomes necessary, or the veterinarian may choose to hospitalize sick dogs in commercial veterinary facilities. Remote kennel sites should have one or more isolation kennels built adjacent to the multipurpose room. This would provide space for quarantine of sick animals and a recovery cage after routine dental prophylaxis or X-ray. Isolation kennels should all be indoor kennels. Two isolation kennels for every 20 dogs is recommended at isolated sites where veterinary services hospitalization capability is not readily available.

(7) A tack room with shelves and racks for storage of the MWD equipment.

(8) A mechanical equipment room for the furnace, water heater, and so forth.

(9) Other closets and storage rooms, as necessary, for storage of handler equipment, tools, repair materials, equipment for building and exterior maintenance, and so forth.

7-4. Standardization

The purpose of this section is to prescribe standard criteria for US Army dog kennels in temperate and frigid climate locations and overseas locations. DOD 4270.1-M and this pamphlet are the primary sources of criteria for all kennel designs and construction projects, regardless of type of funds used.

a. Development of any kennel design will be directed towards achieving goals of austerity, simplicity, and economy of construction, consistent with minimum acceptable health and animal welfare standards. High cost materials, such as quarry tile, ceramic tile, and stainless steel, should not be used if less expensive materials will serve the same purpose. Concrete sealer, epoxy glaze, and plastic laminates are examples of less expensive materials.

b. To the maximum practical extent, passive energy conservation measures will be incorporated in the design of any kennel facility. One method of improving the flow of natural ventilation is to orient the kennels so that the length of the kennel building is on an east-west axis and the kennel building faces north or south. Adequate ventilation is necessary for proper health and sanitation. Therefore, kennel facilities should not be located where other buildings or vegetation will block the natural air flow. If natural ventilation does not prevent the humidity from building up in the kennels, fans or other methods must be used to increase the exchange of air in the buildings so that humidity may be reduced.

c. All kennels will be built to be able to accommodate large breed dogs.

d. The structural design of the kennel building will be modular to facilitate expansion of the kennel in pairs of kennel runs. Accordingly, the structural design should conform to TM 5-809-1 through -6 and -8 through -11, as applicable.

e. The kennel building shell for permanent kennels will be constructed in accordance with figure 7-1. A wood truss may be used in place of steel.

f. An acoustic reduction of approximately 45 decibels will be provided between the kennel and support areas, and between the multipurpose room and any offices.

g. Slope of the floors of kennel runs will be 1/4-inch per foot, and drains should be trapped and connected to waste systems by 6-inch diameter pipe.

7-5. Kennel site selection

Kennels should be located outside built-up areas whenever possible. It is not necessary for the kennels to be located in remote or isolated areas. The kennel site should be located as near as possible to utility (water, sewer, gas, and electricity) sources. Natural barriers are useful in reducing noise and visual distractions. Where there are no natural barriers, it may be necessary to construct artificial barriers. Artificial barriers may be solid walls, wood fences, chain link fencing with privacy strips weaved into the chain link, or other suitable visual and sound barriers.

7-6. Standard permanent kennel, 4-18 dogs

a. Kennel building. The kennel building will be built to accommodate at least four MWDs (four kennels). Kennels should be modular so that additional kennels can be added in pairs if authorizations are increased. Kennels may be totally indoors or, where the climate permits, there may be both an indoor and an outdoor kennel run separated by a guillotine-type door. A sample floor plan for an indoor kennel is shown at figure 7-2.

b. Kennel support building. Where new construction is necessary, room dimensions and the overall dimensions of the kennel support building will not exceed the limits prescribed in paragraph 7-9. Four sample floor plans for a kennel support building are shown in

figures 7-3 through 7-6, which range in size from 435 square feet to 875 square feet. Many other designs are possible. The specific layout of a kennel support building may be varied to meet local requirements, including isolation kennels where they are needed.

7-7. Large permanent kennel, 19 or more dogs

An example of a large permanent kennel is shown at figure 7-7.

a. The kennel building will be built to accommodate at least 20 MWDs. Kennels should be modular so that additional kennels can be added in pairs if authorizations are increased. Kennels may be totally indoors or, where the climate permits, there may be both an indoor kennel or an outdoor kennel run separated by a guillotine-type door. The kennel building includes the food preparation and storage room.

b. Where new construction is necessary, room dimensions and the overall dimensions of the kennel support building will not exceed the limits prescribed in paragraph 7-9. Many kennel support building designs are possible. The specific layout of a kennel support building may be varied to meet local requirements, including isolation kennels where they are needed.

7-8. Semipermanent kennel

Semipermanent kennels may be provided in overseas areas having climates within the tolerances described in paragraph 7-13. The semipermanent kennel may be located adjacent to the PM's office or some other office that is continuously occupied by personnel who are able to care for and protect the dogs. A small house trailer may also be used as a support building to provide a food preparation and storage area, a tack room, and an office for the kennelmaster. An example of a semipermanent kennel is shown at figure 7-8. Detailed designs for temporary kennels intended for use in the theater of operations or other overseas contingencies are found in TM 5-302 (Army Facilities Components System - Designs). The associated bills of materials are found in TM 5-303 (Army Facilities Components System Logistics Data and Bills of Material).

a. The kennel for each dog is constructed of chain link fencing with minimum dimensions of 5-feet 6-inches wide by 12 feet long by 6 feet high. All kennels will have a top guard or a section of fence fastened to the top of the kennel to keep the dog from climbing or jumping out. Prefabricated sections of chain link kennels are available from civilian manufacturers and provide an acceptable kennel. Prefabricated sections are assembled by bolting the corners together. The prefabricated kennel also includes a pre-hung door.

b. Each kennel will be equipped with a doghouse for the dog. Overall dimensions should be 48 inches long by 36 inches wide by 30 inches high. A heating capability will be provided to maintain the doghouse above 35 degrees Fahrenheit during cold weather. Sufficient open shelter should be provided to the kennel so the dog is protected from direct sunlight without reducing the horizontal airflow when the temperature exceeds 85 degrees Fahrenheit.

c. The floor of the kennel will be sealed concrete or pea gravel. Animal wastes will be collected and disposed of in a sanitary manner at least twice daily. If the temperature is above freezing, the kennel floor should also be washed after disposing of wastes.

d. Each kennel will be separated by an opaque barrier fastened to the chain link fencing material to keep the dogs from agitating each other.

7-9. Kennel support building size limits

Kennel support buildings exist to support the operation of the kennel, the daily training of the MWD teams, and the operational missions involving MWD teams. To avoid unnecessary new construction cost, size limits for kennel support buildings have been established. New construction will not exceed these size limits. Kennel designs should provide only the minimum necessary space to perform required functions. Size shall be in accordance with table 7-1.

Table 7-1
Kennel support building size limits

Room or area	Semipermanent		
	Kennel	Standard Kennel	Large Kennel
Food preparation room with counter, sinks, refrigerator, stove, food cart, and storage racks	60SF	80SF	100SF
Food storage room with sufficient space for 30-day supply of food for dogs.	40SF	40SF	80SF
Isolation kennel (optional).	NA	50SF	100SF
Kennelmaster Office.	NA	100SF	100SF
Latrine with sinks, toilets, and showers.	NA	60SF	120SF
Maximum overall size of kennel.	200SF	1000SF	1400SF
Mechanical equipment room for furnace, water heater, etc.	40SF	40SF	70SF
Multipurpose room—ready room, briefing room, classroom, emergency exam and treatment room.	NA	150SF	250SF
Other closets and storage room, each room.	NA	35SF	35SF
Other offices—permanent kennels only, each office.	NA	100SF	100SF
Tack room with shelves and racks for equipment.	NA	40SF	80SF

7-10. Ventilation system

a. The ventilation system in the kennel building will be separate from the system for the kennel support building. At least six air changes per hour are required for the kennel building and at least one air change per hour in the kennel support building. Latrines and isolation kennels will be ventilated by individual systems to avoid mixing with the air in the remainder of the kennel facility.

b. Venturi ventilation is the concept that has been applied to the shell design of the kennel building. If construction is according to the building shell plans, the natural ventilation will normally be adequate to achieve the necessary air movement through the kennel building to maintain the dogs in good health. The Venturi ventilation concept requires that the kennel building be constructed on an east-west axis with both the east and west ends of the building totally enclosed. The kennel building faces north or south. If the building is not oriented correctly or if there are other factors which

interfere with the natural air flow, some auxiliary air movement systems (fans) may be necessary.

c. The minimum effective air flow required for control of moisture condensation under severe conditions is 0.8 to 1.0 cubic feet per minute (CFM) per square foot of floor area.

d. Circular metal roof ventilators (fans) or a continuous ridge may be installed on the top of the kennel building depending on local ventilation requirements. Any roof ventilator used should be capable of being opened and closed manually. A 12-foot ladder should be provided for access to the catwalk to service the ventilators. Forced air reversible fans work well.

e. Each dog kennel within the kennel building may be constructed with a window that could be opened in the event of a ventilation system failure and to admit natural light. The window should be outside the kennel cage. Kennels with both an indoor and

an outdoor section separated by a guillotine-type door are also adequate.

7-11. Heating

a. The kennel building will be heated for frigid zone kennels. Heating will be by floor radiant heat providing a slab temperature of not less than 35 degrees Fahrenheit and not more than 55 degrees Fahrenheit during heating season.

b. Heating of the remainder of the kennel building and the kennel support building will be by the most economical heating system according to human standards. Solar heating applications shall be evaluated in accordance with ETL 1110-3-3xx, Evaluation of Renewable Forms of Energy, dated 3 Aug 83. Other heating systems include low temperature radiant heating system only, radiant heating plus domestic hot water, or domestic hot water only.

c. For cold climates, glazed closures should be provided for all exterior screened areas.

7-12. Air-conditioning

When air-conditioning is authorized, it will be provided in the kennel support area, including the food preparation and storage areas, only. The kennel area of the kennel building will not be air-conditioned.

7-13. Temperature climate kennel

A temperature climate kennel building will be built where the design ground snow load is 20 pounds per square foot or less or where the mean annual heating days are less than 5501.

a. The kennel area will be an enclosed area with a 5-foot wide central corridor or aisle, double loaded with kennels 5-feet 6-inches wide by 8-feet long each. Outdoor runs, 5-feet 6-inches wide by 8-feet long, will be connected to each indoor kennel. The outdoor run will be protected by a 4-foot roof overhang.

b. The indoor kennel and the outdoor run will be separated by a guillotine-type door, operable from the central corridor, to allow isolation of the dogs during cleaning operations.

c. The outdoor runs should be sloped to a gutter located immediately outside of the end fence of each run. Indoor kennels should be sloped toward center aisle drains.

d. All areas within the kennel building should be protected with insect screening.

7-14. Frigid climate kennel

The frigid climate kennel may be used where the design ground snow load is more than 20 pounds per square foot or where the mean annual heating degree days is more than 5500.

a. The kennel building will be completely enclosed with a 5-foot wide central corridor or aisle, double loaded with kennels 5-feet 6-inches wide by 8-feet long each.

b. A gutter and drain will be provided between the inside kennel building wall and the back of each kennel run for sluicing waste waters during kennel cleaning. The space between the wall and back of the kennel runs should be at least 2 feet. Drain gutters should be wide enough to be easily cleaned.

c. The kennel floor will be sloped (at least 1/8-inch per foot) to the gutter to allow for quick water drainage and drying. Drain traps should be deep enough to prevent freezing of water in cold weather.

d. The kennel building design must include ground level ventilation. Venturi ventilation or normal height windows are not sufficient to dry kennel run floors during cold weather.

7-15. Plumbing

A potable water supply (hot and cold water) will be located in the food preparation area. Potable water is water which has been approved for human consumption. If water lines are not available, a water trailer and immersion heaters must be provided.

a. A hot water heater will be installed to provide sufficient hot water for authorized dogs and handlers.

b. Kennel building water lines will be installed at ceiling level with drop connection lines at least every 50 feet.

c. The sinks in the food preparation room should be the deep, laundry-type basins.

d. All floor drains will be at least 6-inches in diameter. An isolation kennel will have at least one 6-inch floor drain located outside the kennel.

e. Gutters between indoor and outdoor kennels make cleaning easier. Half round pipe permits the dog to walk through. All gutters should be flushed immediately after cleaning with potable water to prevent sanitation problems. Kennel runs on both sides may be cleaned from the center aisle.

f. Attachment of the kennel plumbing system to a sewer system is highly recommended. A 100-gallon septic tank must be emptied daily for 50 dogs.

7-16. Lighting and electrical systems

Receptacle circuits in areas to be washed down or subjected to spraying will be provided with ground fault circuit interrupters. All electrical sockets (inside and out) will be the all-weather type with a spring cover.

a. Lighting in the kennel building will be 10-foot candles and in the multipurpose room at least one area should be 70-foot candles. Lighting in the remainder of the kennel facility will conform to the requirements of DOD 4270.1-M, and Illuminating Engineering Society (IES) lighting handbook.

b. Lighting in the kennel building is required for safety and security.

c. Outside security lighting should be sufficient to provide a lighted perimeter around the kennel facility to prevent an unauthorized intrusion.

7-17. Public address system

A public address system should be provided between the kennel-master's office, the kennel building, and the outdoor training and exercise areas. The public address system should consist of one master station and an appropriate number of speakers.

7-18. Structural safety and security

a. Gates and metal frames should be constructed from square tubular metal rather than angle iron. Chain link spot-welded to angle iron is easily torn loose by aggressive or bored dogs. Tabular metal gate and kennel frames are significantly more maintenance free.

b. Kennel run gates and kennel building doors will be self-closing.

c. All kennels will have chain link fencing installed over the top of the kennel to prevent the dog from climbing or jumping out.

d. Water-type fire extinguishers must be provided for each 2500 square feet of floor space in the kennel and support buildings.

e. At least two doors or gates should separate the dog from unrestricted public areas.

7-19. Kennel partitions

A full height concrete partition will be provided between all kennel runs. A 4-foot high, germ and urine resistant, glaze coated wainscot will be provided on all masonry walls. All areas accessible to dogs will be finished with materials that are resistant to damage by scratching, biting, and chewing. Materials selected should provide the minimum maintenance and maximum sanitation possible. Paint and epoxy compounds are not usually effective.

7-20. Louvers

Louvers are installed on the fixed portion of the kennel face on opposite sides of the center aisle between kennels so that dogs are unable to directly observe each other. Louvers are installed to extend from the floor to at least 4 feet high. Louvers are used so as not to interfere with natural ventilation. Louvers normally are not needed on the gate. Gate entrances to kennels are alternated so dogs will not be in direct line of sight with the kennel on the opposite side of the corridor. (See fig 7-2.)

7-21. Kennel building floor

a. All floors in kennels and isolation kennels will be sealed concrete.

b. All floors will be sloped toward drains and/or gutters to provide rapid run-off of water and rapid drying. Floor drains and gutters are located outside the kennel runs.

7-22. Kennel fixtures

a. One pallet will be provided for each dog. Pallets will be wolmanized wood or other hardwood to resist insect infestation and chewing by the dog. Commercially manufactured hard plastic kennel pads may be acceptable for use with dogs, but should not be used until evaluated and approved.

b. A bucket holder will be provided for each kennel for each dog. A hoop that encircles the bucket or a double snap holder are both acceptable because they prevent the dog from overturning the water bucket.

7-23. Fencing

Standard chain link fencing 8-feet high will be used to enclose the training area, and all entrances to the kennel building. A top guard (of plain wire, not barbed wire) should be installed to prevent a dog from climbing or jumping out. Each outside entrance of the kennel building will be enclosed to provide a space not less than 15 feet by 15 feet and an outside self-closing gate. NATO standard fencing or Type FE-5 (OCE Drawing 40-16-08) are both suitable for all fencing requirements.

7-24. Parking and sidewalks

a. Parking will be limited to no more than eight stalls in front of the kennel support building. A gravel surfaced access drive should connect the parking area with the training area.

b. One concrete sidewalk will be provided between the parking area and the main entrance to the kennel support building. A pea gravel path may be provided around the kennel building and kennel support building.

c. Walkway planning should consider the need for dog team traffic in and around the kennel facility to be one way to avoid confrontation between dogs.

7-25. Training area

An enclosed, secure training area is required to provide a location where training can be held in advanced obedience, confidence training, and correction of deficiencies in off-leash control. To simplify transportation requirements, the training area should be located near the kennel building. All training areas should be constructed according to the following standards:

a. The entire training area should be enclosed using standard chain link fencing. The fencing must have one or more entry gates with an automatic latching device that securely latches the gate when it closes.

b. The surface of the training area must be free of objects that may be harmful to the dogs or handlers, such as rocks, broken glass, holes, and sand burrs. The surface should be graded or sloped to prevent standing water.

c. The size of the training area should be at least 80 feet by 100 feet to give adequate room for off-leash training exercises.

d. An obedience course, as illustrated in figure 3-1, should be built in the training area or in an adjacent training area. The obedience course obstacles may be built from salvaged materials. Each obstacle must have padding and a nonskid surface to prevent injuries to the dogs. Specifications for the obstacles are provided in paragraph 7-26.

e. Training areas must be kept clean, all obstacles in good repair, and vegetation closely trimmed. Stools must be removed at the end of each training session.

7-26. Obedience course

The obedience course obstacles are constructed according to the specifications provided in figures 7-9 through 7-14. Figure 7-9 gives the dimensions of the three barrels and tunnel. Figure 7-10

gives the specifications for the steps. Figure 7-11 gives the specifications for the three jumps. Figure 7-12 give the specifications for the window obstacles. Figure 7-13 gives the specifications for the "A" frame. Figure 7-14 gives the specifications for the dog walk.

7-27. Exercise area

The exercise area is an area where the dog can be released by itself. Only one dog is allowed in the exercise area at a time. The area should be at least 20 feet by 20 feet enclosed by standard 8-foot high chain link fencing. The surface of the exercise area should be sloped to prevent the accumulation of standing water, and the area should be free of all objects that may be harmful to the dog.

Section II

Maintenance and Sanitation

7-28. Kennel maintenance

a. Proper maintenance of kennels requires early detection and correction of all deficiencies, safety, and health hazards. Kennels must be carefully inspected daily by the kennelmaster and each of the assigned handlers. Loose or worn hinges, catches or rollers, broken wire or anchor fasteners, and any other broken or damaged equipment must be promptly repaired. Wood pallets must be checked for broken boards, splinters, mold, signs of chewing or insect infestation, and replaced or repaired as necessary.

b. Kennel runs are cleaned out daily to remove debris and stools, and washed out daily to remove urine, dust, and stains. Drain troughs are provided outside each run to provide proper drainage.

c. Special cleaning of kennel runs using hot water and detergent, or steam cleaning, must be done at least weekly. All areas will be thoroughly rinsed with potable water after cleaning. A chemical sanitizing agent (disinfectant) which has been approved by the veterinarian will then be applied to control infectious bacteria and offensive odors.

d. Insects and rodents can be controlled by immediate disposal of all waste material. Rodents are attracted by dry meal and food scraps. All foodstuffs must, therefore, be stored in rodent-proof containers. Tall grass, weeds, and brush will be removed from areas that harbor ticks and other insects, preferably by controlled burning under fire department supervision. Vegetation should be removed from around the kennel to a distance of at least 10 feet. The area should then be sprayed with a residual insecticide, approved by the veterinarian. The kennel area, the food preparation and storage area, and any other appropriate area also will be sprayed periodically with a residual insecticide prescribed by the veterinarian.

Section III

Kennel Safety and Transportation of Dogs

7-29. Warning signs

Warning signs, which must be posted on exterior fencing and buildings of the kennels and training area, are prescribed in AR 190-12.

7-30. Safety measures and procedures

a. Consistently practicing safety in the kennel and training area is a direct measure of the professional skill, motivation, and credibility of every handler, kennelmaster, and supervisor of an MWD kennel facility. Freedom from careless accidents builds public confidence in the individual and collective abilities of all handlers, and helps build a favorable impression of the MWD program among the members of the Army served by the MPs. Although MWD are trained to be tolerant of other personnel and dogs, the constant activity in kennel areas tends to excite the dogs. Positive control must be maintained to prevent a dog from getting loose and injuring a person, another dog, or itself. Safety is every handler's personal responsibility.

b. Personnel must not run or horseplay in or near kenneled dogs. This activity agitates the dogs and could result in a dog mistaking the actions with actual hostility, thus causing an attack.

c. Personnel must make sure they secure all gates after use, avoid sudden movements when passing dogs, and not speak or move in any threatening way around the dogs.

d. Handlers must keep dogs on a short leash at all times in the kennel area. If a dog gets loose, the first person to notice the loose dog must warn everyone else. Everyone except the dog's handler ceases all movement until the handler regains physical control of the dog.

e. One way traffic patterns must be set up throughout the kennel and training area to keep dogs from meeting head-on.

f. Handlers with dogs will give a verbal warning when entering or leaving the kennel area, or whenever their view is obstructed. These warnings help to prevent the dogs from being surprised by the sudden appearance of a person (and vice versa) rounding a corner or opening a door.

7-31. Training area safety

The following safety precautions are required in training areas not surrounded by fences.

a. Keep a safety leash on the right wrist while moving to and from training areas.

b. Keep a safe distance between dog teams in the area. When approaching another dog team, each dog is held in the heel position with a short leash.

c. Except when necessary for certain training exercises or while in a vehicle, the handler should not sit or lie down when accompanied by a dog.

d. Never secure the dog to an object with the leash, never stake out the dog and leave it unobserved, and never tie the dog to a vehicle. The dog can chew through or break the leash.

e. If a dog fight occurs, never attempt to stop it alone, and never attempt to pull the dogs apart. Pulling may injure the dogs.

(1) If on a leash, keep the leash taut, work the hands toward the snap of the leash, and hold the leash firmly with one hand, grasping the dog's throat with the other hand and squeezing with thumb and forefinger to cut off the dog's air supply. When the dog gasps for air, move the dogs away from each other.

(2) If off a leash, grasp the choke chain, leather collar, or the nape of the neck with one hand and with the other squeeze the dog's throat with thumb and finger to cut off the dog's air supply (the handler uses the same procedures when the dog bites a person. An attacked person should not try to jerk free from a dog's bite. Any unnecessary movement by a person will only increase the seriousness of the injury). When the dog gasps for air, move the dogs away from each other.

(3) An alert handler recognizes when a dog is about to attack, grasps the leash above the snap, holds the dog's front feet off the ground, pushes the dog away and slowly turns in a circle to keep the dog off balance.

7-32. Safety in veterinary facilities

When taken to a veterinarian, the dog is among unfamiliar surroundings and people and may behave unexpectedly. The handler must be prepared to physically control the dog while medical care is being given. The handler should always be present and immediately available to the veterinarian whenever the dog is receiving medical treatment.

a. Before entering the veterinary clinic, the handler should muzzle the dog, attach the short leash, and carefully follow the instructions of the veterinarian.

b. Before entering, the handler must give a verbal warning that an MWD is entering. In the treatment facility, the handler controls the dog with the short leash. The handler can calm the dog by speaking in a soothing, reassuring voice to the dog. When facilities permit, MWDs will be admitted to the veterinary treatment facility through an entrance separate from that used by privately-owned animals.

7-33. Vehicle transportation

a. A cleated ramp may be used to load dogs onto a vehicle. If a ramp is not available, the handler lifts the dog on or off the vehicle by using the front and hindquarter or the stomach lift. Injured dogs

may require different handling. Dogs are lifted on or off a vehicle on a short leash.

b. To place the dog in a vehicle for patrol purposes, begin with the dog at the heel or sit position. Open the door, command HUP, then SIT. A stable platform with a nonskid surface as described in para 2-4 should be used to cover the seat. The dog may be off-leash in the vehicle, but is never tied or left alone. When getting out of the vehicle, the handler commands HEEL.

c. Dogs being transported off an installation may be transported in shipping crates. If the dog is being shipped to a potentially hostile area, the crate should be painted with camouflage paint. Plainly mark the shipping crate with the dog's name and brand number, and mark in bold letters on the shipping crate "DANGER, MILITARY WORKING DOG—DO NOT TAMPER WITH ANIMAL." Handle the crate carefully to prevent it from being dropped. If a vehicle has an accident, remove the dog from the crate and check for possible injury.

7-34. Aircraft transportation

MWDs and handlers will normally be moved together. Commercial air transportation may be used when moving MWD teams interstate or to overseas commands. The following requirements apply to all movement of MWDs:

a. Handler and dog will be routed on the most direct flight by using the most cost-effective commercial air transportation. For overseas movement, Category Z or other discount fare will be used. A handler should always accompany the dog on the overseas segment of travel.

b. When handler and dog move together on PCS, the dog is declared as "excess baggage" on the Government Transportation Request (GTR). The GTR will contain the statement: "LIVE ANIMAL—MILITARY WORKING DOG."

c. When the handler takes a delay enroute in the continental United States (CONUS) (for example, leave), the dog will be shipped separately as air freight to the appropriate CONUS commercial gateway to link up with the handler. The losing unit commander is responsible for coordinating the movement of the dog and handler to ensure arrival at the airport at approximately the same time. The handler will claim his or her dog from the air freight carrier, and transfer the dog and crate to the air carrier on which they are scheduled for overseas movement. The Government Bill of Lading (GBL) will contain the statement "LIVE ANIMAL—MILITARY WORKING DOG" also. Copies of all appropriate documents, such as health certificate and vaccination records, will accompany the GBL/shipment as required.

d. All shipment of MWDs must minimize the number of stops and transfers. If possible, during hot weather, ship dogs at night. The air temperature in any holding area should not be allowed to fall below 45 degrees Fahrenheit or to exceed 85 degrees Fahrenheit at any time. MWDs should arrive at the airport as near to flight time as possible and not more than four hours prior to flight time. For CONUS moves, the shipping installation will notify the receiving installation of the carrier, the flight number, and the date and time of arrival. A handler from the receiving installation will be assigned to meet and claim an unaccompanied dog within 4 hours of its arrival.

e. The MWD will be offered potable water within 4 hours, but not less than two hours prior to flight time. Feeding and watering instructions must be affixed to the outside of the shipping crate and included on the GBL so that the dog can be cared for if there are delays enroute. Instructions will include the recommendation to provide potable water at least once every 12 hours and food at least once every 24 hours. Appropriate food should also accompany the dog and shipping crate.

f. The shipment must also comply with conditions specified in subpart A, part 3, subchapter A (Animal Welfare), chapter 1, title 9, Code of Federal Regulations.

g. When making booking, transportation officers/port call activities should ensure that the airline is advised that the passenger is authorized excess baggage consisting of a metal shipping crate, a

live animal, and its food. Provide the total weight, the number of pieces, and the dimensions of each piece.

h. Local procedures should be established to ensure that necessary information on port call is provided to all persons involved; that is, the handler, the kennelmaster, the unit commander, the central port call office (CPCO), and the transportation officer. When the dog is shipped air freight, other movement information (carrier(s), flight number(s), date(s), and time(s) of departure and arrival) will be provided by priority message (and by phone, if possible) to the Military Traffic Management Command (MT-PTO-T), to the Military Air Traffic Coordinating Unit (MATCU), the installation/activity nearest any connecting airport, and the gaining unit/installation, as appropriate. The appropriate personnel assistance point (PAP) will be an information addressee on the message.

i. MTMC will provide additional guidance as necessary to ensure maximum visibility of the movement of MWDs including, but not limited to, air carriers and assistance that can be provided by MATCUs, air carriers, and air terminals. Where international movements are involved, location of MATCUs will be a factor in the routing determination.

j. As a general rule, movement of dog and handler together is funded from the Military Personnel, Army (MPA) account. Movement of the dog alone is funded from the operation and maintenance, Army (OMA) account.

k. All movement of patrol-trained dogs should be accomplished using the standard metal shipping crate. The lighter, fiberglass shipping container may be used for nonpatrol-trained detector dogs and for the small breed detector dogs.

7-35. Hot weather requirements

a. When transporting dogs in shipping crates, use air-conditioned or well ventilated vehicles, give the dogs adequate and frequent supplies of fresh, cool water, and in case of vehicle breakdown, unload each dog from the vehicle and locate in a nearby shady, cool area.

b. Load crates so that the dogs will get maximum ventilation. Never place baggage, other crates, or equipment on top of or around a crate. Never load dogs into crates that have been standing in the sun.

c. Check dogs often to be sure they are not becoming overheated.

7-36. Leaving dogs unattended

Dogs should never be left unattended except when they are put in their kennels. There are times, however, when they must be left unattended for short periods. When this becomes necessary, the rules below must be followed:

a. Use only the leather collar and a kennel chain to stake out a dog. Do not use the choke chain and leash.

b. Do not secure a dog to a vehicle or an object that can be moved, or may accidentally move.

c. Do not stake out a dog in a location where it could injure itself or others.

d. Make sure that the dog is located in a shady area during hot weather.

e. Check the dog often to make sure that it is not in distress.

Section IV Security Requirements for Kennels

7-37. Risk analysis

In order to provide the most realistic and cost-effective protection for the MWDs and kennel facility, commanders must appreciate the importance and analyze the significance of the threats to these assets because of theft, sabotage, or damage. A proper analysis of these risks will determine the minimum level of protection needed to adequately safeguard these resources. This process is called risk analysis. The principles of risk analysis (see AR 190-51) apply to the determination of measures which must be taken to protect the kennel and dogs from criminal activity.

7-38. Designing for security

Many passive security measures, such as lighting, barriers, and structural integrity, can be provided merely by including them in the design and construction of the kennel facility. All access points to the kennel facility can be designed to prevent unauthorized access. Security can be provided in depth to delay an intruder from reaching his or her objective. The facility can be located in an area that provides a reasonable degree of natural security from terrain features or from its proximity to other installations. Although a patrol dog will provide an early warning of an intruder, a patrol dog confined in a kennel can do very little to prevent an intruder from taking kennel property or from harming the dogs. Some of the security design depends on the types of materials or equipment which will be maintained in the kennel facility. For example, if training aids will be stored in or near the facility, special safety and security requirements exist to protect explosives and narcotics. Structural security decisions depend on the identification of the assets which will be maintained in the kennel facility, the importance of these assets to the accomplishment of the operational mission, the identification of the significance of the threat to these assets, and the appropriate measures to counter the threats.

7-39. Operational security

Operational security is achieved by identifying the appropriate measures and procedures which are necessary to protect the dogs and the kennel facility. Important elements of operational security are as follows:

a. Controlling access to the facility.

b. Controlling access to certain areas of the facility.

c. Security awareness by the handlers.

d. The active application of security principles to handler activities in and around the kennel.

e. Property accountability.

f. The security and accountability of training records.

g. Careful daily inspection of the dogs and the kennel area.

7-40. Minimum kennel security requirements

a. As a general rule, kennels should be manned both day and night. Full-time coverage provides:

(1) Immediate response to any attempted unauthorized intrusion.

(2) The capability to render immediate attention to a dog that is in physical distress.

(3) The ability to seek immediately veterinary medical assistance.

(4) A continuous ability to feed, water, and care for the dogs.

b. Despite these reasons, there may be situations when it is not possible or practical to provide full-time coverage of the facility. In this event, appropriate compensatory measures are necessary to protect the dogs, the equipment, and the facility. Some form of an IDS and CCTV needs to be installed in the kennel facility. Although motion sensors in the kennel building are not practical, there are other sensors, such as contact switches, and pressure grids that would provide warning to a security force. CCTV would allow the monitoring of MWDs to identify any problems. Frequent checks of the facility should be made to ensure that one of the dogs does not need medical attention. Care must be exercised during these checks to not overly excite the dogs or the lack of rest may interfere with their performance. All other compensatory measures, as justified by risk analysis, should also be applied. The lighting and fencing requirement, included in the engineering instruction for kennels in section I above, may be augmented as necessary. Doors and locking hardware should be consistent with the structural security requirements for buildings in AR 190-51. Keys must be readily available in case of an emergency. Fresh water must be provided at least every 8 hours for dogs confined in their kennels. Narcotics and/or explosives training aids will not be stored in unattended facilities unless:

(1) The storage room and container are protected by an IDS.

(2) The standards of AR 195-5 and AR 190-11 are met for narcotics or explosives, respectively.

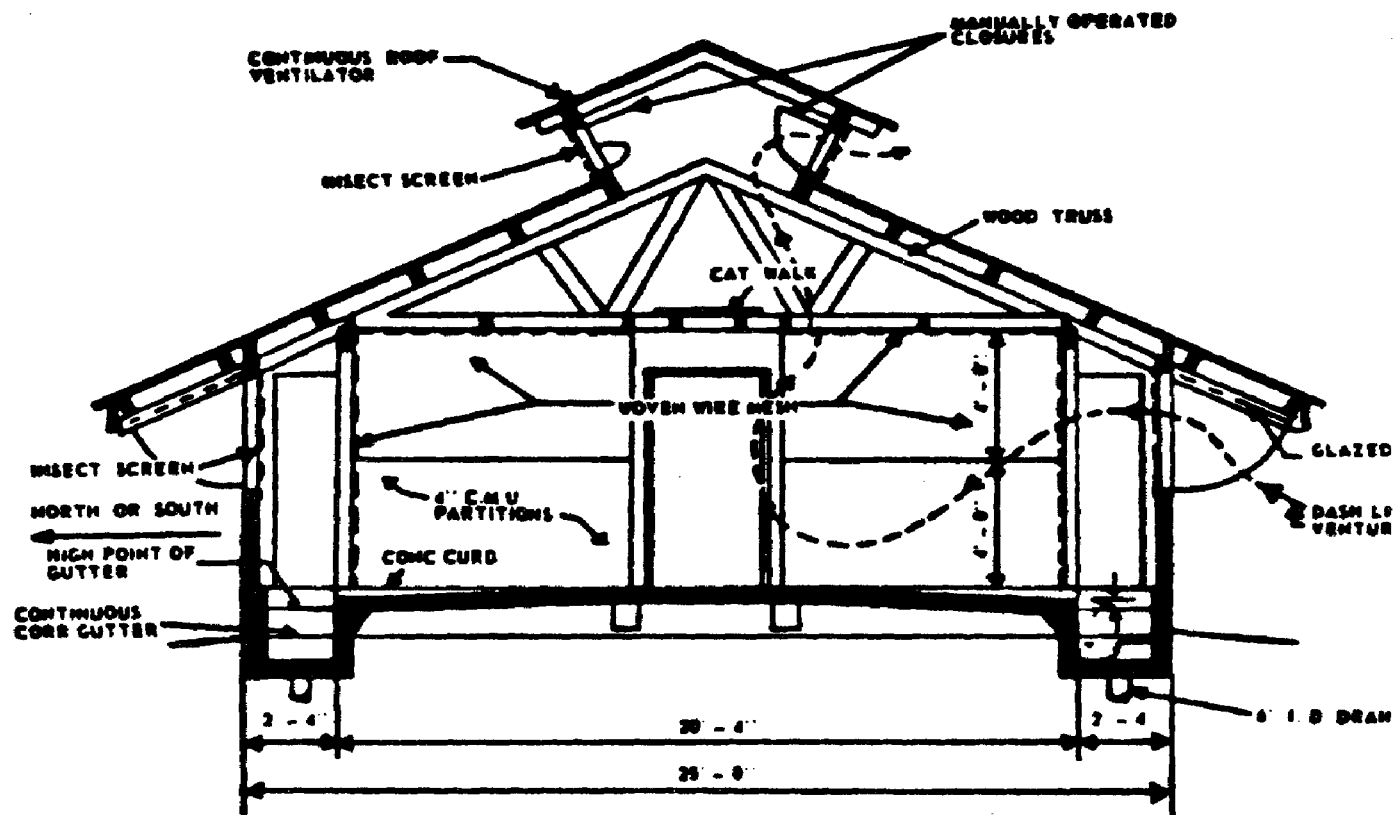


Figure 7-1. Standard kennel building shell

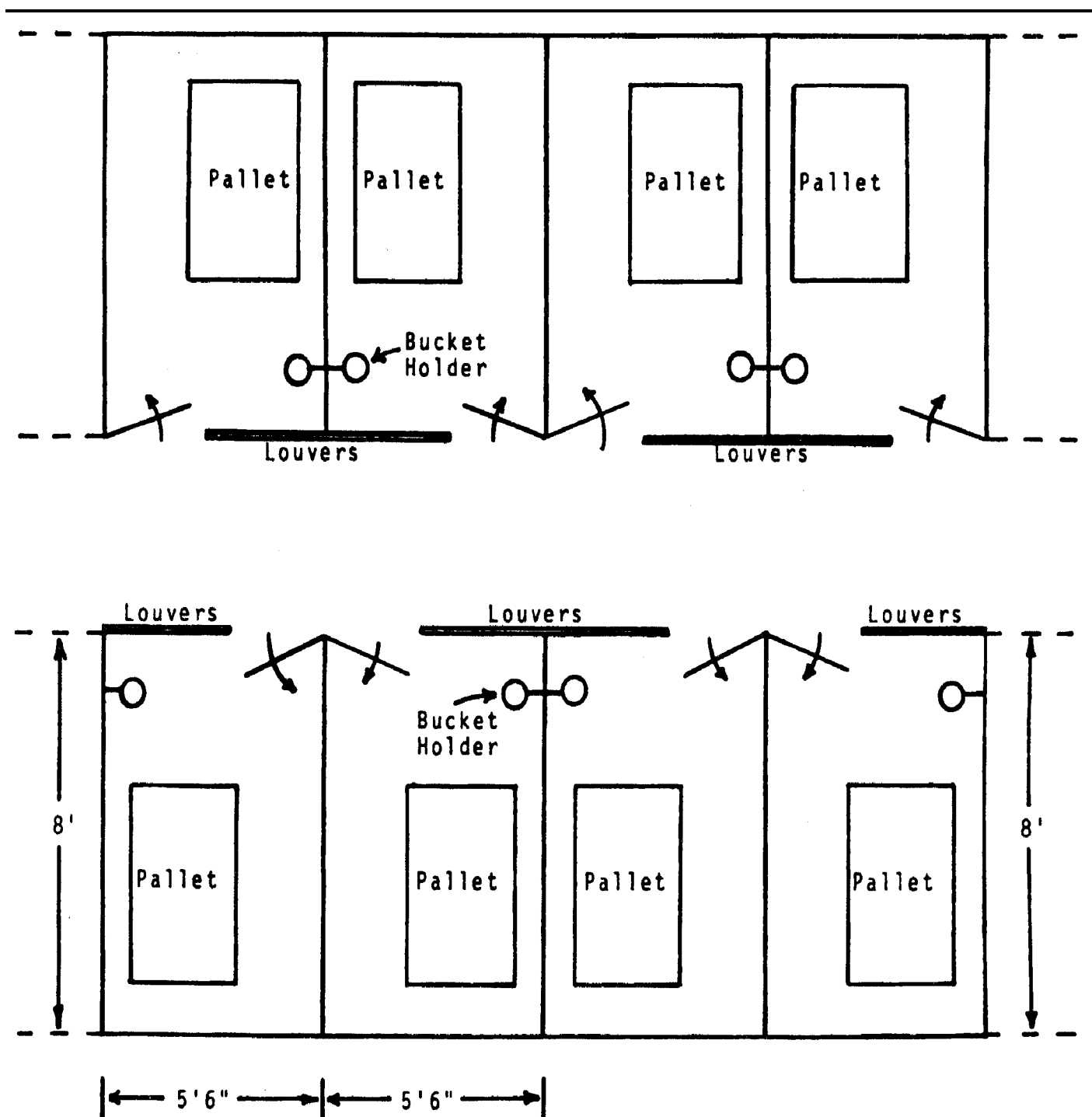
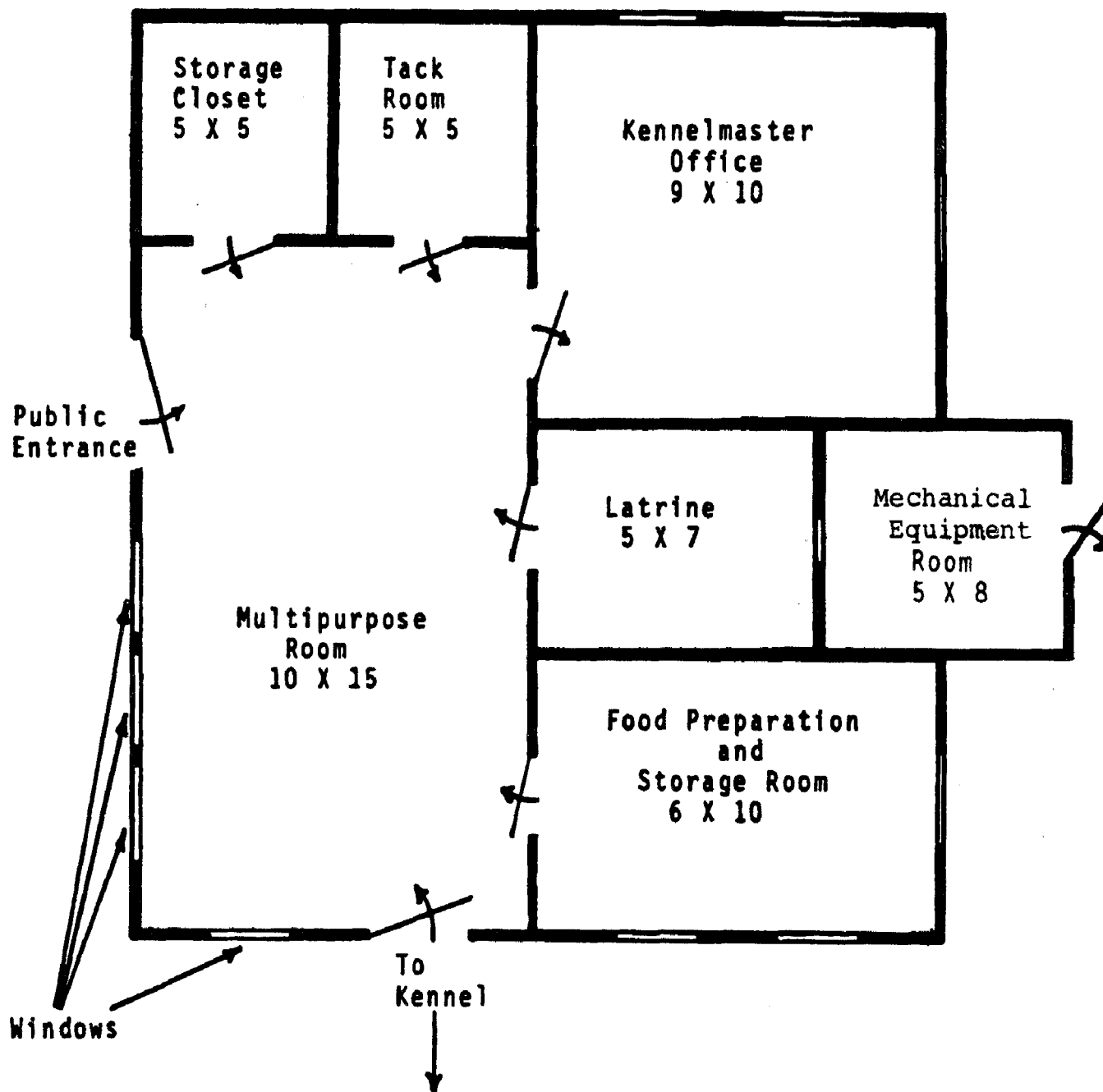
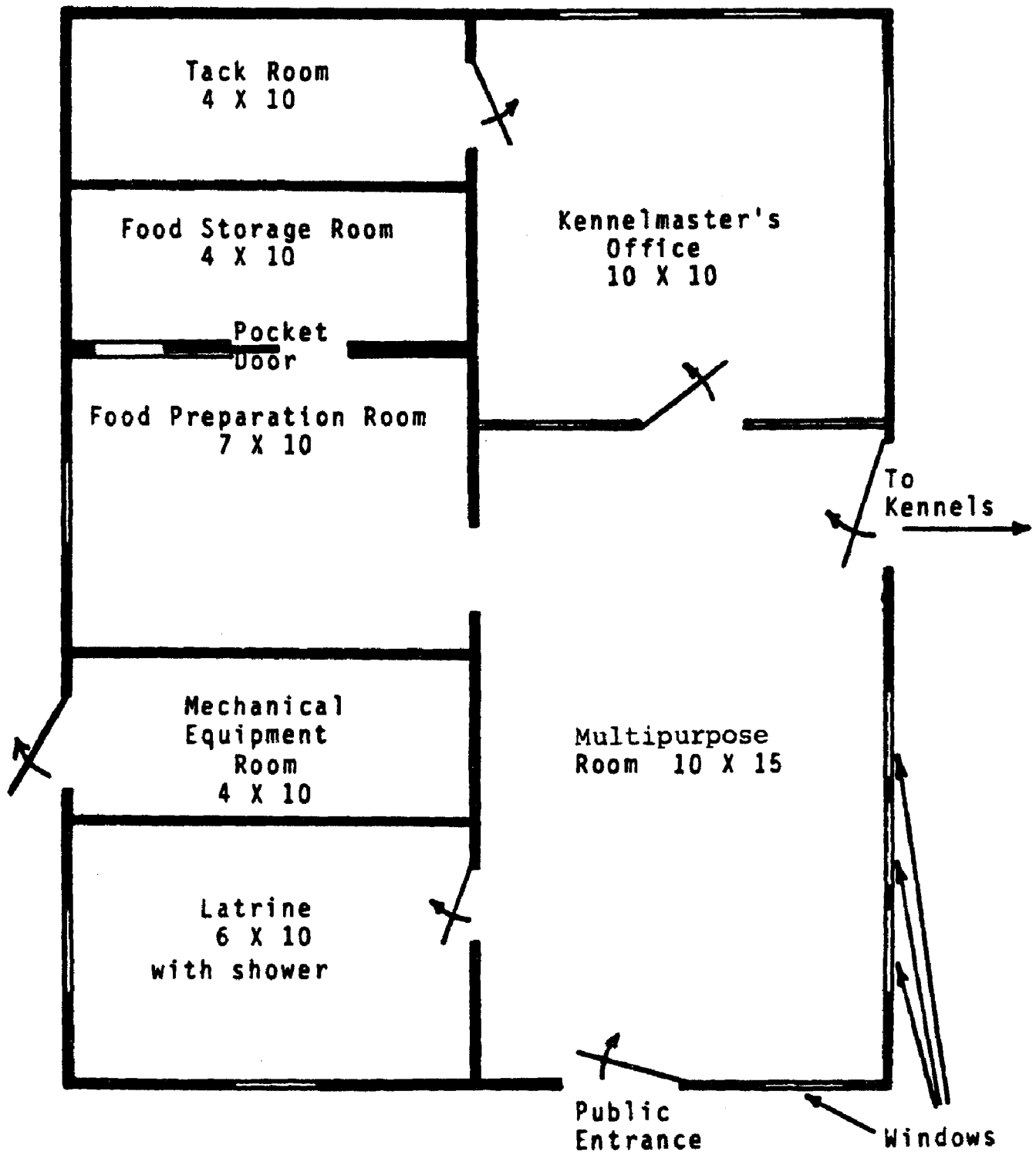


Figure 7-2. Sample floor plan, indoor kennel



NOTE:
All measurements are in feet

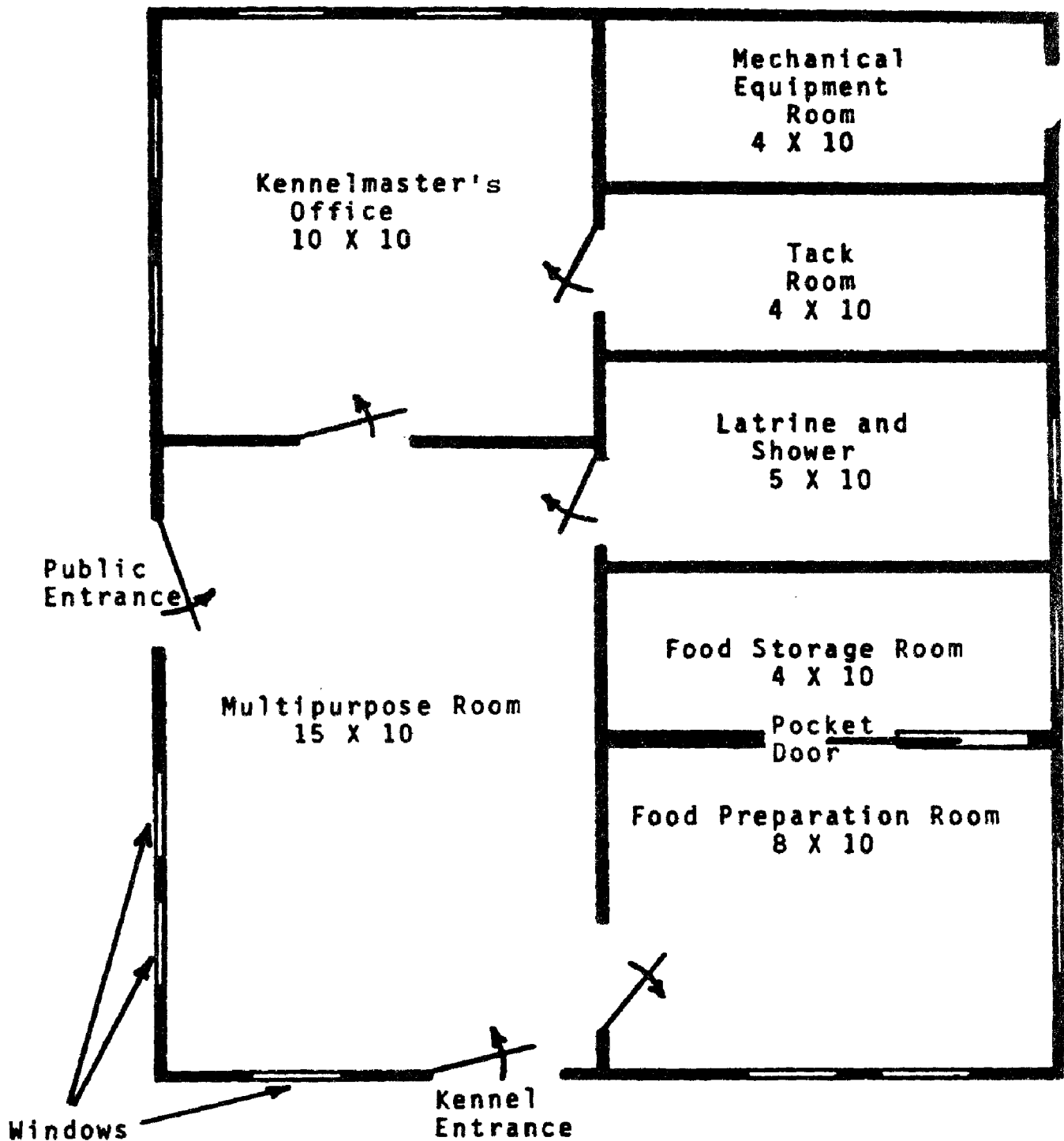
Figure 7-3. Sample kennel support building, 435SF



NOTE:

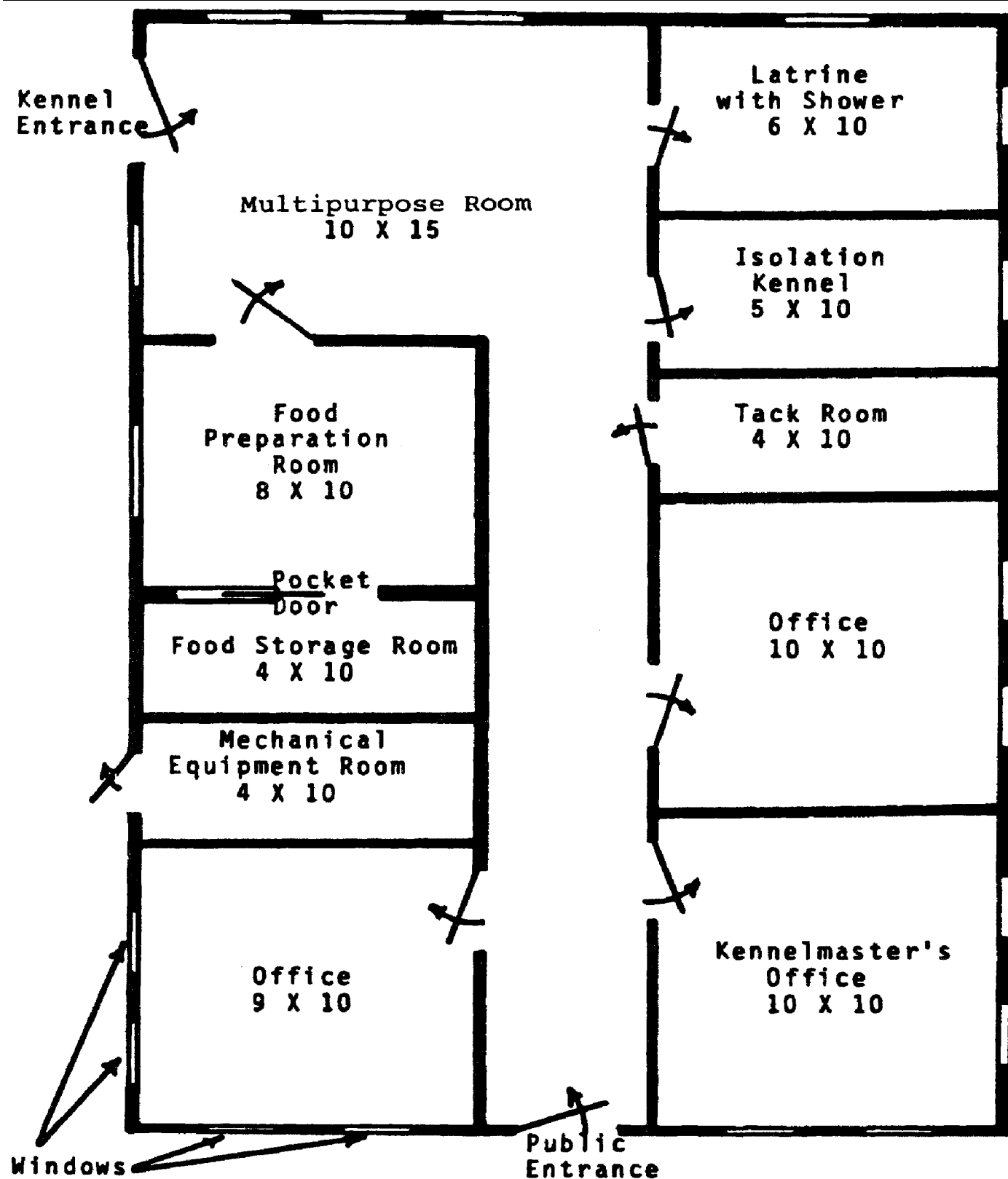
All measurements are in feet

Figure 7-4. Sample kennel support building, 500SF



NOTE:
All measurements are in feet

Figure 7-5. Sample kennel support building, 500SF



NOTE:
All measurements are in feet

Figure 7-6. Sample kennel support building, 875SF

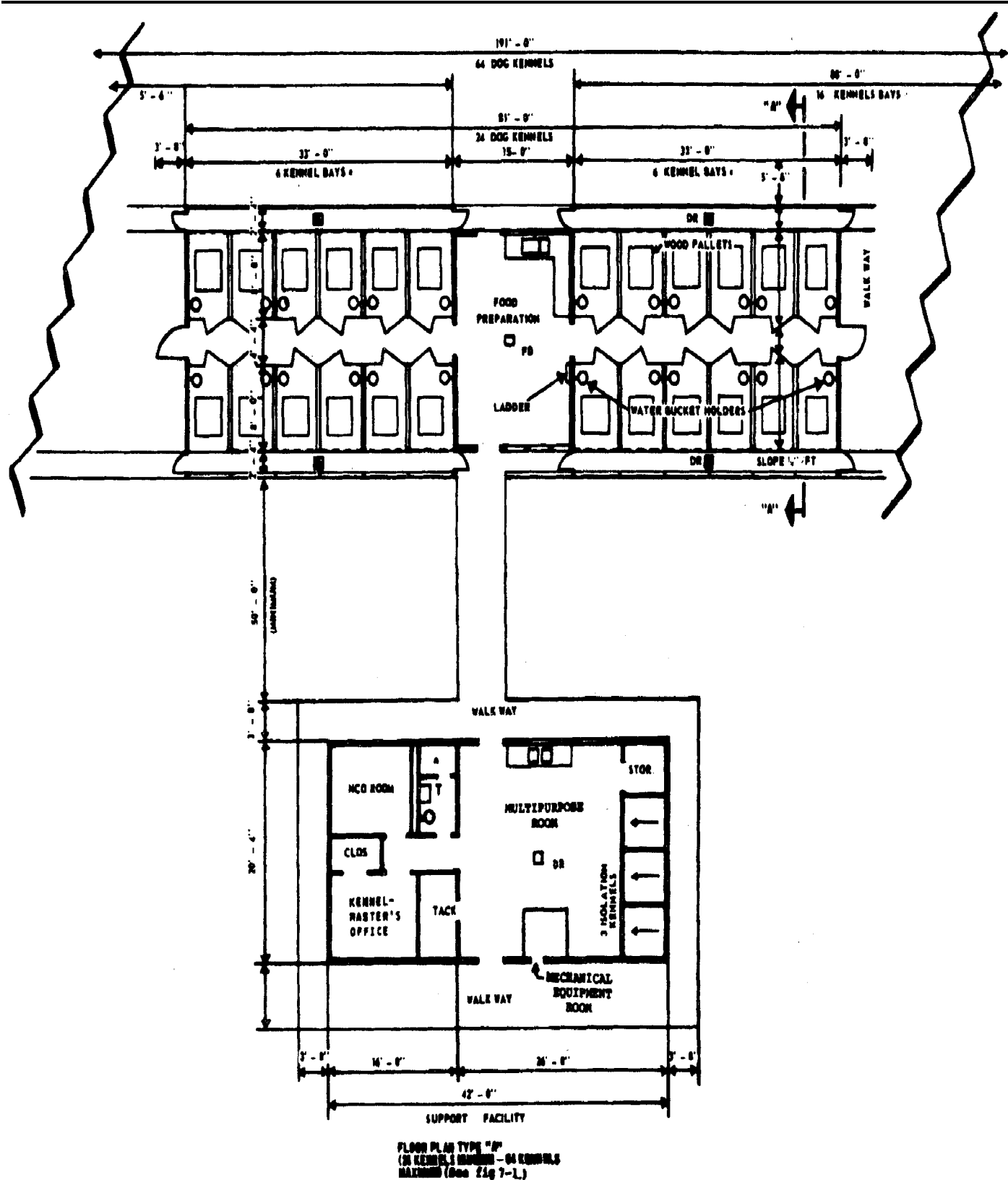
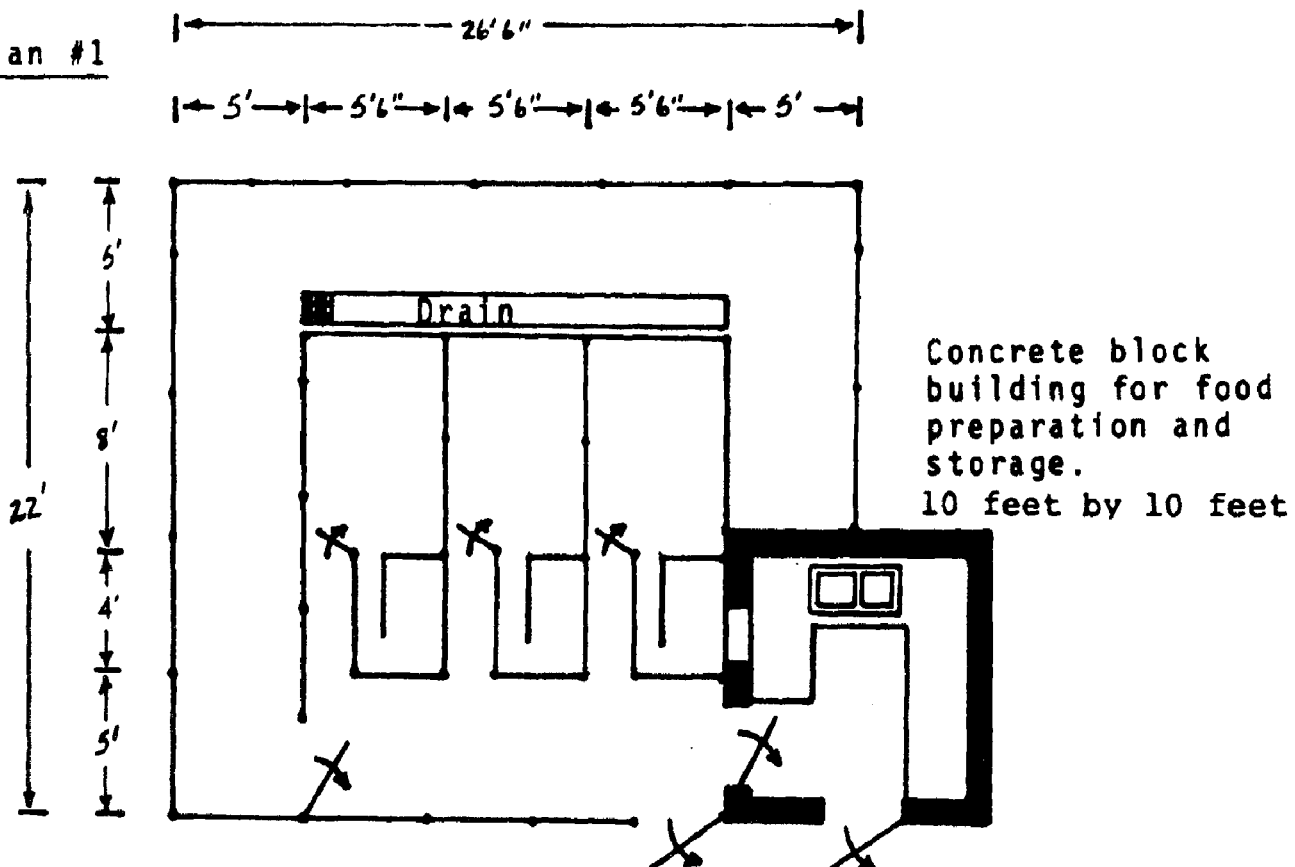


Figure 7-7. Large permanent kennel

Plan #1



Kennels constructed on concrete pad, 17 feet by 16 feet 6 inches, including a 5 foot apron in front. Kennel and a 5 foot strip around kennel enclosed by chain link fence.

Plan #2

Kennels constructed on concrete pad, 12 feet by 16 feet 6 inches, completely enclosed by chain link fence.

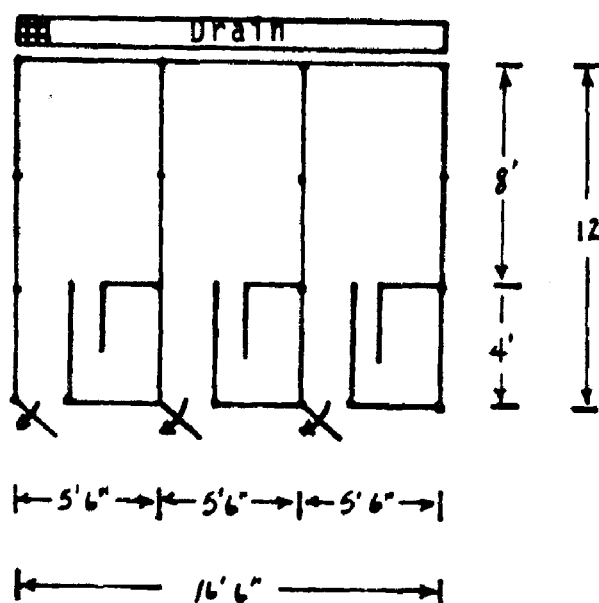
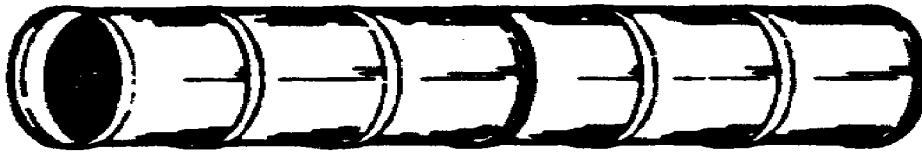


Figure 7-8. Semipermanent kennel



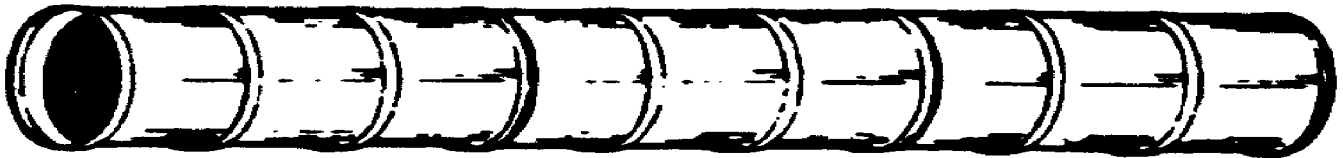
Barrel No. 1

Length = 35 inches
Opening = 23 inches



Barrel No. 2

Length = 70 inches
Opening = 23 inches



Barrel No. 3

Length = 105 inches
Opening = 23 inches



Tunnel

Length = 146 inches
Opening = 19 inches

Figure 7-9. Specifications for barrels and tunnel

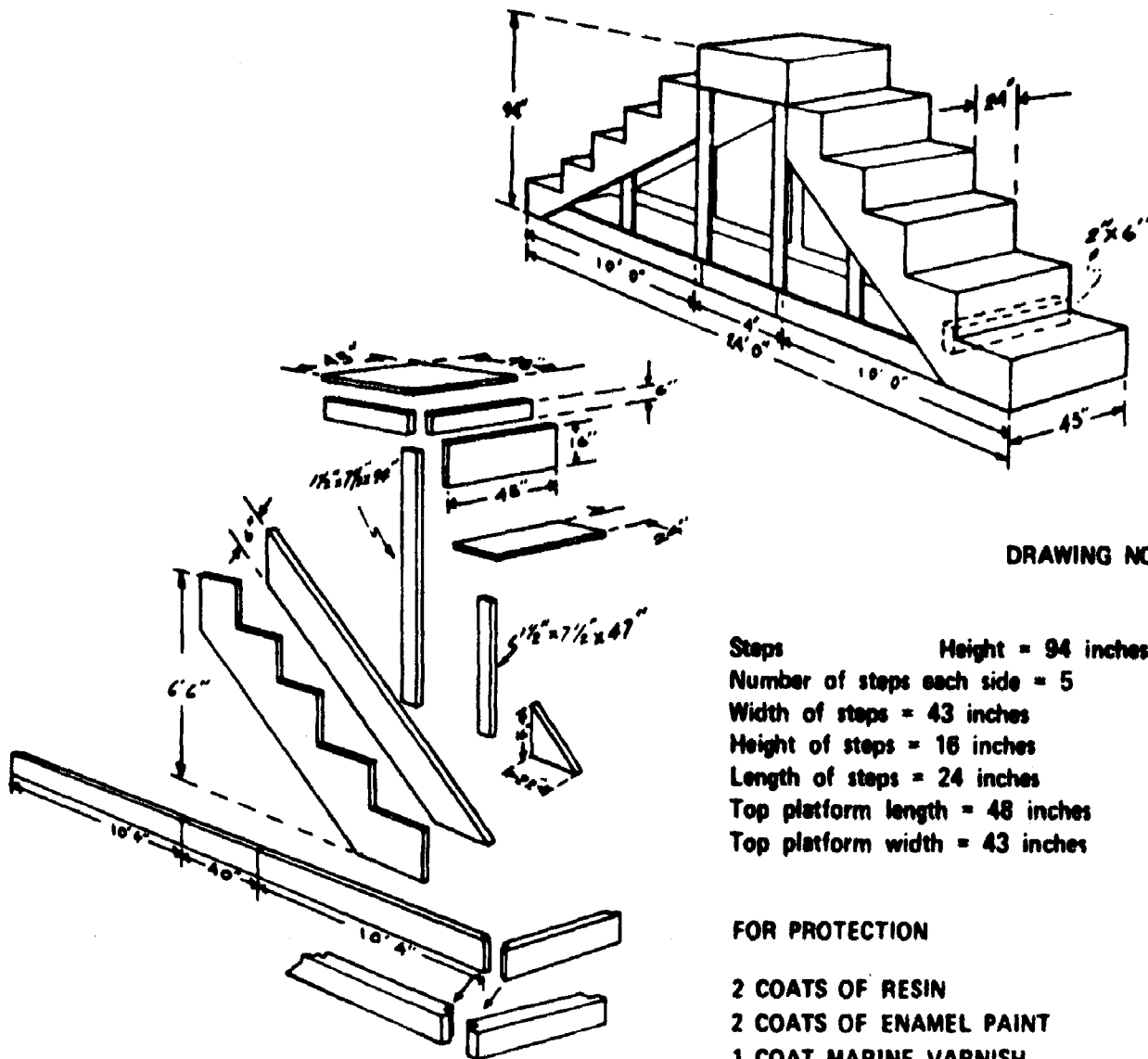
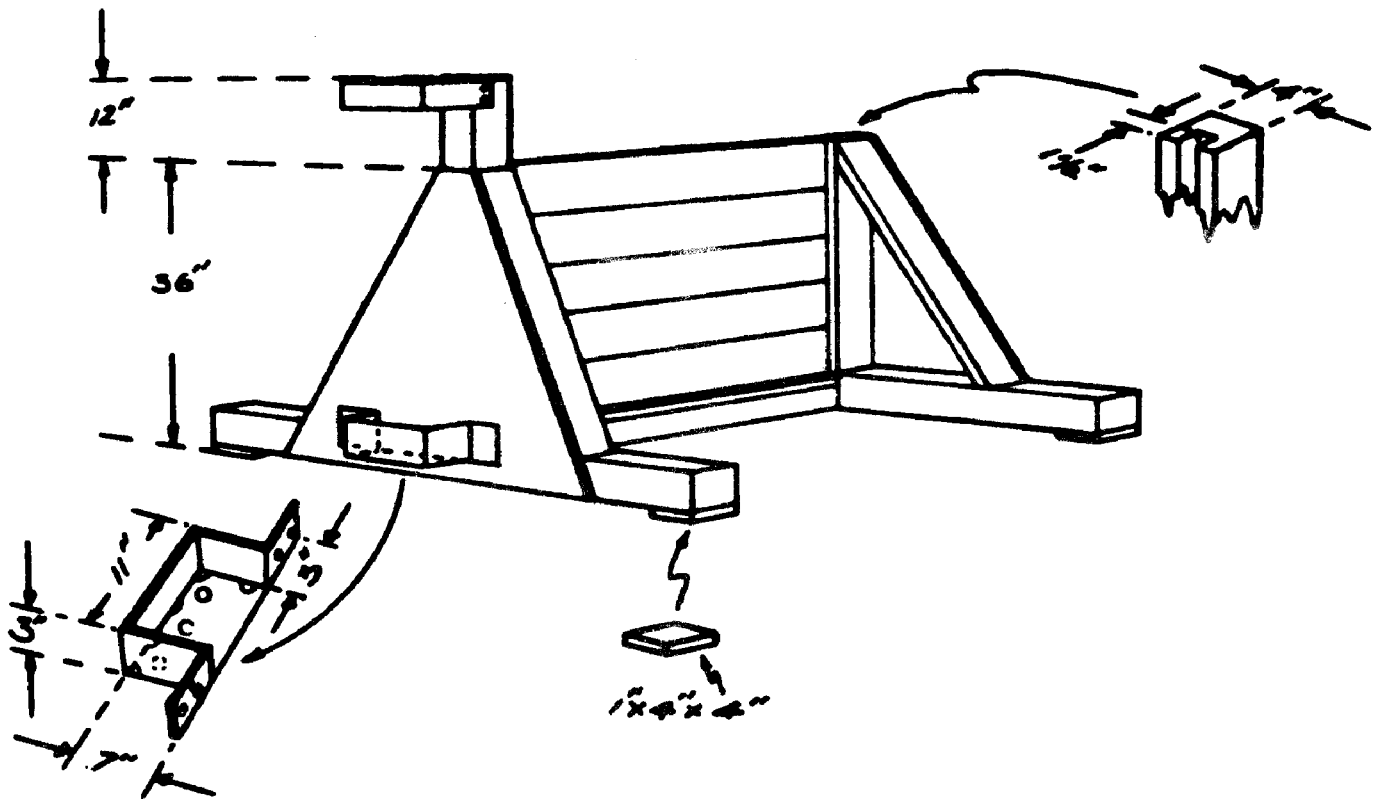


Figure 7-10. Specifications for steps



Jumps 1, 2, and 3

Height at maximum raised level for dog to negotiate = 36 inches

Number of removable boards = 6

Length of 6 boards, each = 51 inches

Height of 6 boards, each = 6 inches

Thickness of each board = 1 inch

DRAWING NOT SCALED

FOR PROTECTION

2 COATS OF RESIN

2 COATS OF ENAMEL PAINT

1 COAT MARINE VARNISH

Figure 7-11. Specifications for jumps

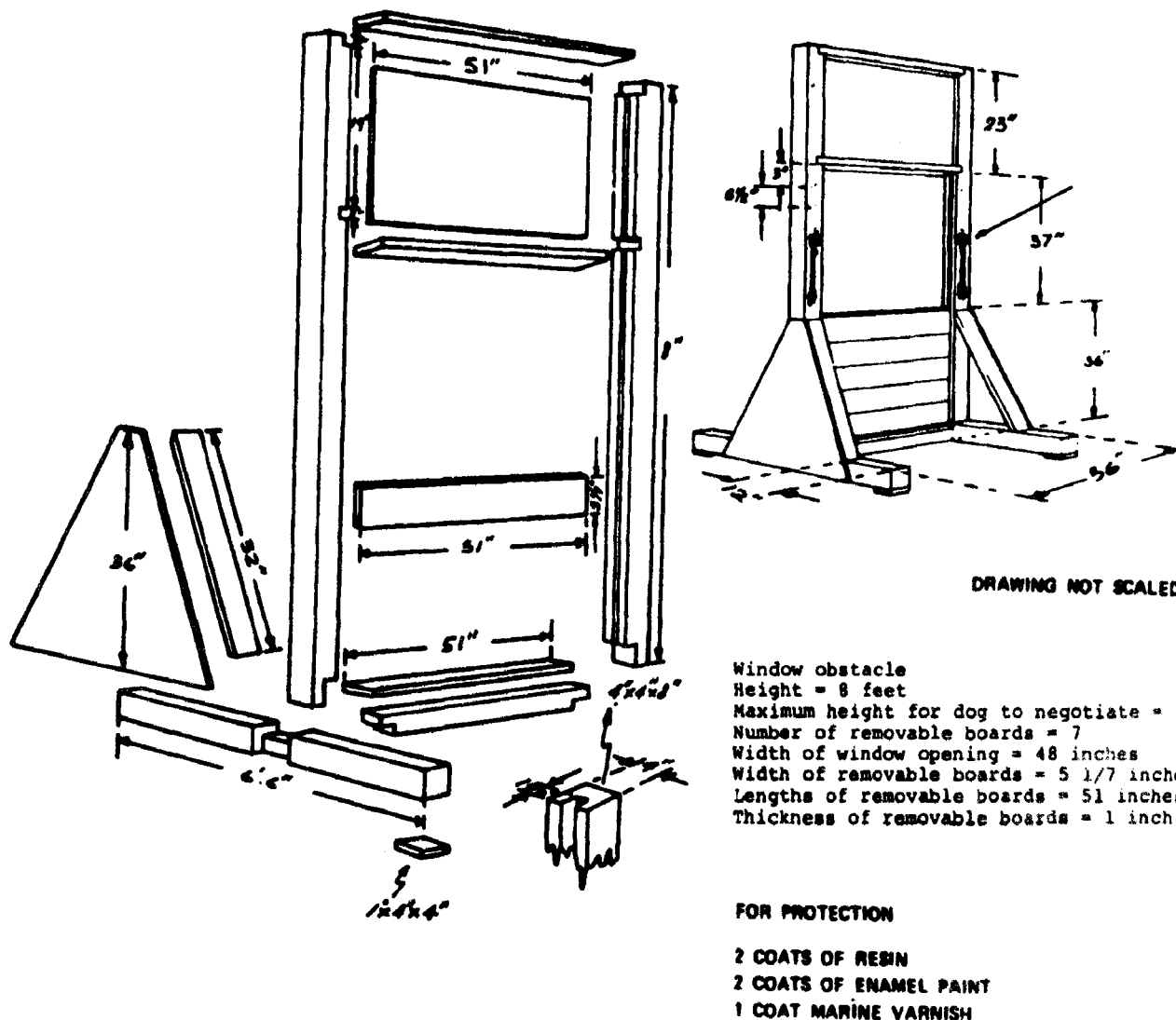
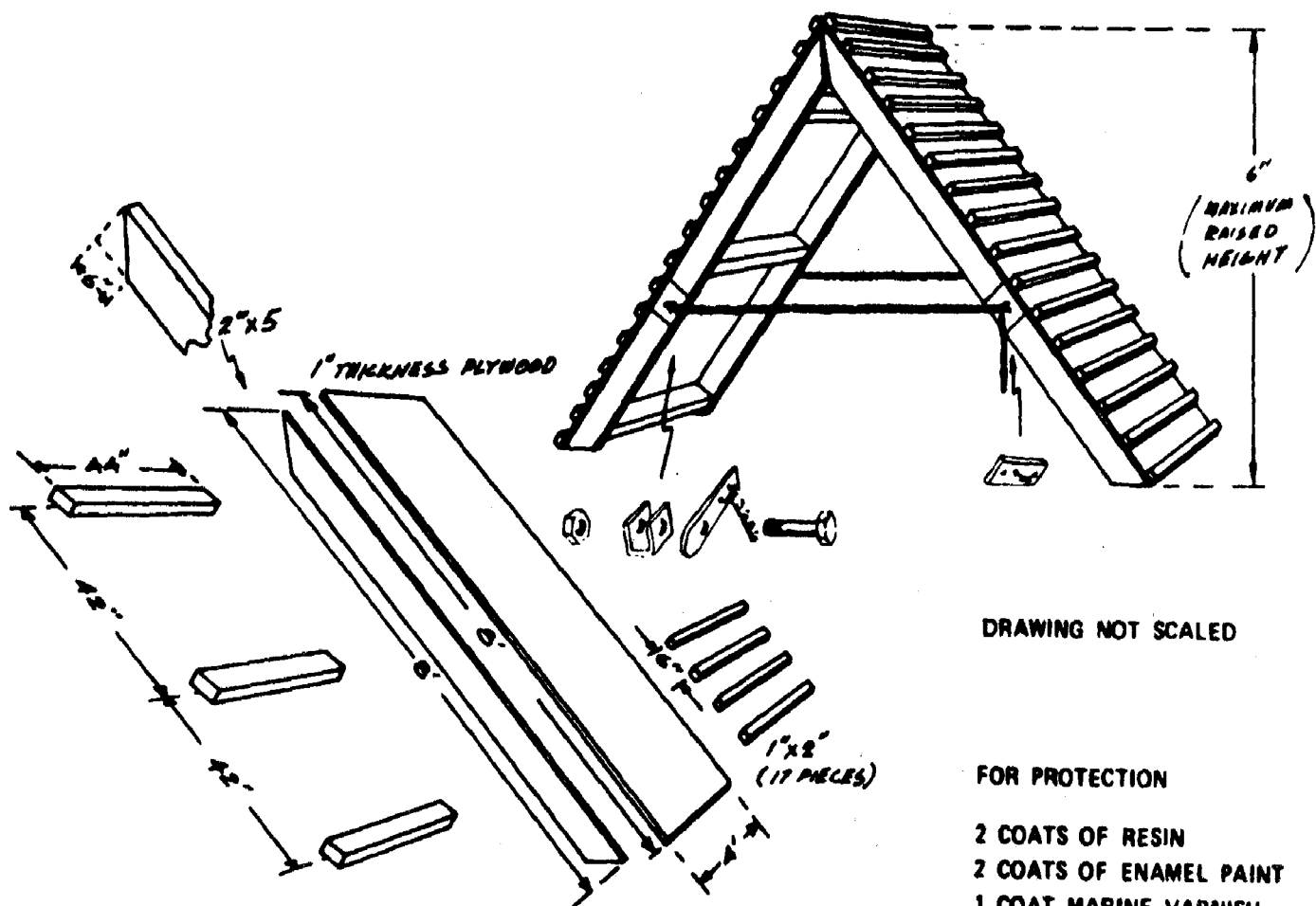


Figure 7-12. Specifications for window obstacle



"A" frame, length 16 feet, 8 feet on each side
 Maximum raised height = 6 feet
 Adjustable from the horizontal position to the maximum allowable of 6 feet
 Width = 4 feet
 Added 1½-inch-wide boards every 4½ inches to insure safe footing

Figure 7-13. Specifications for "A" frame

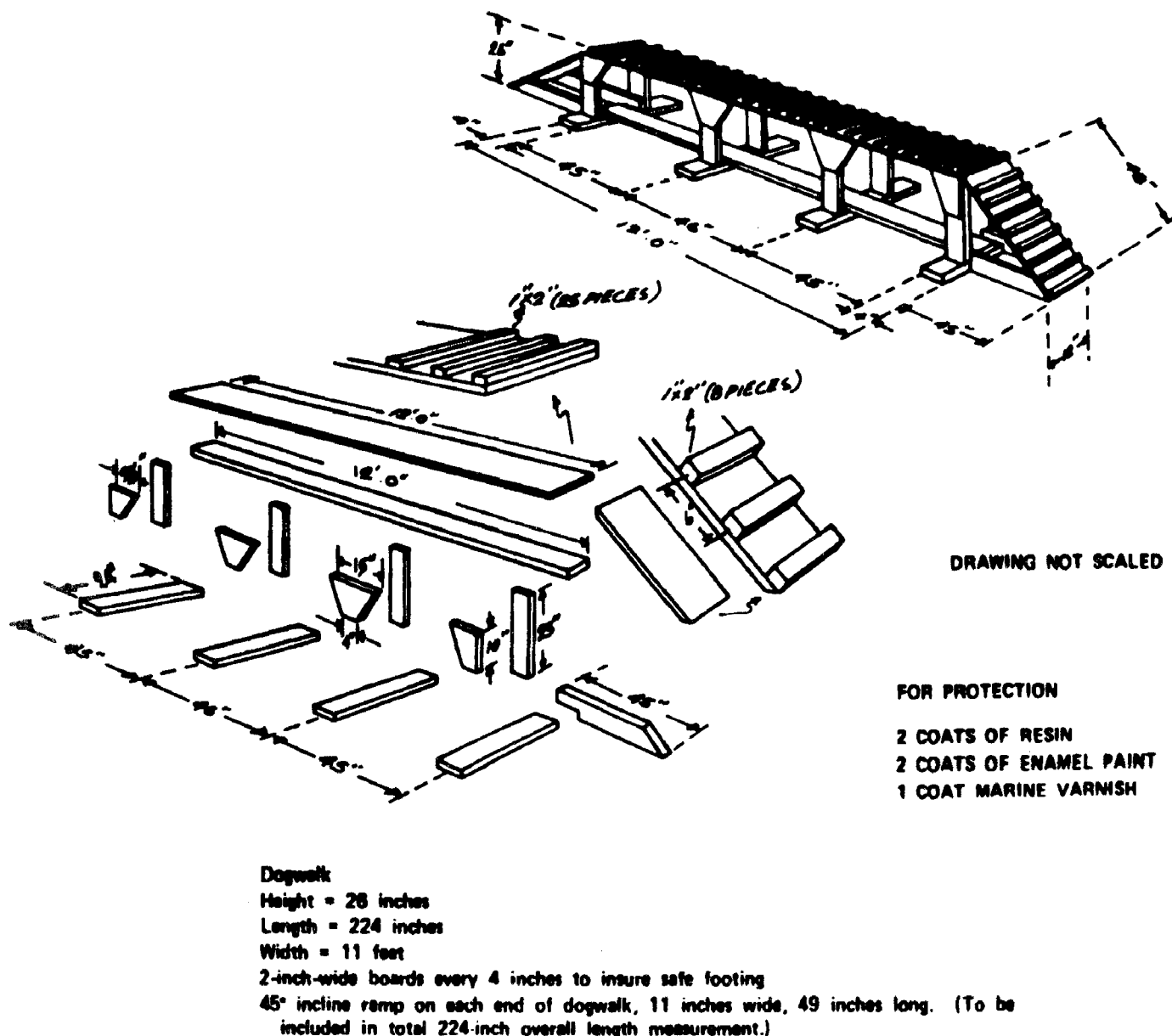


Figure 7-14. Specifications for dogwalk

Chapter 8 Authorized Equipment

8-1. General

The various items of equipment authorized for MWDs and kennel facilities are listed in Common Tables of Allowance (CTA) 50-900 and CTA 50-970. Commanders, kennelmasters, and handlers must make sure all necessary equipment is available and kept in good condition.

8-2. Initial issue equipment

The following items of equipment are used by each handler and are issued when the handler enters initial patrol dog training. Replacement of these items is the responsibility of the unit or installation to which the dog and handler are assigned.

a. Choke chain. The choke chain is the basic collar used for all MWDs. Usually the choke chain is left on the dog. Choke chains are available in several sizes and the handler is responsible to make sure the correct size is used.

b. Leather collar. The leather collar is used when a dog is secured to a stationary object. Some older patrol dogs and detector dogs were trained to work only when wearing the leather collar. Current training procedures have eliminated the need to use the leather collar as a work cue, but some dogs may work more effectively when the leather collar is used as a work cue.

c. Kennel chain. The 6-foot kennel chain is used with the leather collar when securing the dog to a stationary object on a temporary basis. The kennel chain is never tied around the dog's neck or snapped to the choke chain.

d. Muzzle. The muzzle is used only as a safety device when it is necessary to prevent the dog from biting. The muzzle is most commonly used when the dog is receiving veterinary treatment or field first aid treatment. The muzzle is usually not used during training because it is distracting to the dog.

e. Leash. Two types of leashes are available for use: the 60-inch leather leash and the 360-inch cotton web training leash. Only the 60-inch leather leash is initial issue. The 360-inch cotton web leash is used during advanced obedience training, some phases of attack training, and when the dog is used for tracking.

f. Equipment holder. The equipment holder is used to secure items of equipment so the handler's hands remain free.

g. Comb and brush. The dogs should be brushed often to remove loose hair, spread natural oils, remove dirt, and to prevent their hair from matting. The comb should be used only when necessary because excessive combing removes the dogs undercoat and may scratch or cut the skin.

h. Reward ball. Detector dogs are usually trained to detect narcotics or explosives using a rubber ball as a reward. This ball is a special 2 1/2-inch hard rubber ball that can be purchased from dog equipment suppliers.

8-3. Organizational equipment

The following items of equipment are not issued to the handler when entering training, but must be available so that he or she can properly care for and train the dog.

a. 360-inch cotton web training leash. Use of the leash is explained in paragraph 8-2e.

b. Feeding pan. The feeding pan is stainless steel and has a 3-quart capacity. This size is enough to hold the dog's daily ration and allow the dog room to eat.

c. Water bucket. The water bucket is galvanized steel or galvanized metal and holds at least 3 1/2-gallons of water. Each dog has a water bucket. The bucket is cleaned and refilled daily with fresh potable water. In cold weather, water in the bucket must be located in an area where it will not freeze. For small breed dogs, a standard feed pan may be used for a water container.

d. Leather harness (NSN 3770-00-240-6620). The only time the patrol dog wears the leather harness is while tracking. The tracking harness is specially designed to ground scent. A scouting harness is specially designed to allow the dog to scout with its head up. The harness enables the handler to control the dog's ranging distance, but still allows the dog to breathe normally. When the harness is worn, the choke chain is removed. Although some dogs may scout or track without the harness, the harness serves as a useful cue to the dog that the mission to be performed is scouting or training. The dog's efficiency is greater in a harness.

e. Arm protector. The arm protector is used by an agitator or decoy when training patrol dogs in controlled aggression. This sleeve is used instead of the attack suit sleeve because patrol dogs trained on the larger, more bulky attack suit sleeve tend to have a weaker, more inconsistent bite. The smaller sleeve is easier for the dog to bite and dogs will then learn to more readily bite the arm rather than some other portion of the body. The arm protector should always be wrapped with heavy cloth or burlap to serve as added padding against bites and bruises. Also, the cloth allows a greater degree of protection against injury to the dog's teeth and gums. Target cloth, NSN 8305-00-285-2152, is very suitable for the outer wrap and is available through supply channels.

f. Attack suit. The attack suit is used for patrol. The attack suit consists of the leather protective pants or overalls (which are made similar to overalls) and the leather protective vest. A variety of protective gauntlets, cuffs, and sleeves are available for use with the attack suit to protect the arms and hands.

g. Shipping crate. The shipping crate is aluminum and is designed for transporting MWDs over a long distance. It may be used for a temporary kennel (NSN: 8115-00-803-3172).

8-4. CTA 50-900

Items of dog training equipment are authorized in CTA 50-900. They are listed in table 8-1.

8-5. CTA 50-970

Items of MWD and kennel facility equipment are authorized in CTA 50-970. (See table 8-2).

8-6. Care of equipment

a. Leather equipment should be wiped with a damp cloth whenever it becomes muddy or dirty. Leather should be thoroughly cleaned with saddle soap weekly. All leather equipment in storage must be inspected periodically and in ready working condition.

b. Rust will be removed from metal equipment and parts with a fine grade of steel wool. After cleaning, a very light coat of oil will be applied to the metal.

c. Web equipment will be kept clean by washing as needed.

8-7. Support vehicles

a. Each unit, installation, and activity with assigned MWD teams should assign enough support vehicles so that mission and kennel support activities can be properly maintained. Some variation of the types of vehicles may be necessary to be sure that the vehicles used are appropriate for the purpose and offer the most functional configuration. Regardless of the type of vehicles used, some modification will usually be necessary to maximize the mission effectiveness of the dog, to provide the dog a comfortable, supportive, and protective area, and to prevent unnecessary damage to the vehicle interior. Paragraph 2-4c describes the platform which must be installed in a vehicle when using patrol dogs in mobile patrols.

b. Support vehicles assigned to units with EDDs must be equipped and maintained so that the vehicles meet the safety requirements to transport explosives. Vehicles that do not meet the explosives safety requirements will not be used to transport explosives.

c. All vehicles used to transport MWDs must be equipped with removable warning signs with the wording "CAUTION-MILITARY WORKING DOGS." Signs are placed on the sides of the vehicle when it is used to transport dogs.

8-8. Training aids weight scale

One trip balance laboratory scale, NSN 6670-00-401-7195, is authorized by CTA 8-100 for each MP unit with authorized narcotics/contraband detector dogs, and is used for weighing narcotics/contraband training aids as explained in chapter 4.

8-9. Approved locking devices

Only approved locking devices are authorized for use where locks and locking hardware are required. Approved locking devices are:

a. Padlocks, military specification MIL-P 43607(GL) (high-security padlock) with the NSN 5340-00-799-8016 (open shackle with clevis and chain), and NSN 5340-00-799-8248 (shrouded shackle with clevis and chain).

b. Padlocks, military specification MIL-P-17802C body with the NSN 5340-00-158-3807 (with chain), and NSN 5340-00-158-3805 (without chain).

c. Pin tumbler mortise locks with dead bolt that conform to the following minimum standards:

(1) Dead bolt throw of at least one inch.

(2) Double cylinder design.

(3) Five pin tumblers of which two will be mushroom or spool-type drive pin design.

(4) Have 10,000 or more key changes.

(5) Is not master keyed.

(6) Bolt is not visible when in the locked position.

d. High-security hasps described in MIL-H-43905A for use with the high-security padlock. The high-security hasps are currently manufactured in nine styles, with the first six styles being the styles to be used.

e. Hasps and staples for secondary locks which are heavy pattern steel, securely fastened to the structure with smooth headed bolts, rivets, or welding to prevent removal.

Table 8-1
Dog training equipment authorized in CTA 50-900

LIN	Item	Basis of issue
T72252	Sleeve, dog attack trainer's: Arm chrome leather outer covering. NSN 8415-01-122-0684	1 per 5 MWD
	Sleeve, dog attack trainer's: Arm sagless jute cloth outer covering. NSN 8415-01-122-0681	1 per 5 MWD
	Sleeve, dog attack trainer's: Arm 840 denier nylon outer covering. NSN 8415-01-122-0683	1 per 5 MWD
	Sleeve, dog attack trainer's: Arm, one-ply animal jute outer covering, 29 inches long. NSN 8415-01-122-0678	1 per 5 MWD
	Sleeve, dog attack trainer's: Arm, one-ply animal jute outer covering, 24 inches long. NSN 8415-01-122-0682	1 per 5 MWD
	Sleeve, dog attack trainer's: Forearm 9-11 ounce aluminum. NSN 8415-01-122-0685	1 per 5 MWD
	Sleeve, dog attack trainer's: Arm 1/4' neoprene rubber. NSN 8415-01-122-0679	1 per 5 MWD
	Sleeve, dog attack trainer's: Upper Arm 2-ply split leather. NSN 8415-01-122-0680.	1 per 5 MWD
	Sleeve, dog attack, trainer's: Hand protective, German jute. NSN 8415-01-122-0674	1 per 5 MWD
F53543	Cuff, dog attack trainer's. NSN 8415-01-122-0686	As required
E43371	Vest, dog attack trainer's. NSN 8415-01-122-0675	1 per 5 MWD
X35399	Overall, dog attack trainer's. NSN 8415-01-122-0676	1 per 5 MWD

Table 8-2
Military working dog and kennel facility equipment authorized in CTA 50-970

NSN	Item	Basis of issue
3770-00-163-9542	Blanket, dog coat style OD, large	1 per dog
	OR	
3770-00-163-9543	Blanket, dog coat style OD, Med	1 per dog
	OR	
3770-00-163-9544	Blanket, dog coat style OD, Small	1 per dog
3770-00-555-9959	Brush, animal grooming	2 per dog
3770-00-162-6207	Chain, dog kennel steel, 72 inches long	2 per dog
3770-00-951-6418	Collar, dog leather with D-Ring and buckle, 18 inches by 2 inches wide.	2 per dog
3770-00-255-6191	Collar, dog steel chain choke 24 inches, 22 inches or 20 inches	2 per dog
3770-00-163-2606	Comb, dog	1 per dog
3770-00-171-1257	Holder, dog leash leather belt type with triple snap.	1 per handler
3770-00-171-1258	Leash, dog with swivel and snap leather lead type.	2 per dog
3770-00-171-1256	Leash, dog with swivel and snap cotten webbing OD, 360 inches long 5/8 inch wide.	1 per dog
3770-00-170-1495	Muzzle, dog leather russet	2 per dog
3770-00-105-2717	Muzzle, dog attack bite proof	1 per dog
7240-00-160-0455	Pail, metal steel galvanized	2 per dog
3770-00-951-3230	Pan, dog feeding aluminum 3 quart capacity.	2 per dog
3770-00-025-7914	Leash, dog nylon	1 per dog in hot/wet climate
3770-00-026-2409	Holder, dog leash nylon	1 per dog in hot/wet climate

Chapter 9 Inspections

Section I Operational Inspection Guidelines

9-1. General

a. This chapter provides the commander with inspection guidelines. The reading of this chapter alone will not provide a commander or any other inspector with sufficient knowledge to perform a competent inspection. Before beginning an inspection, the commander needs to be thoroughly familiar with the policy of AR 190-12, this pamphlet, FM 19-35, and other relevant publications. This chapter provides guidance regarding the scope of an inspection and directs the commander towards inspecting those activities which need the greatest attention. A commander is not limited by this guidance and may inspect any aspects of the unit MWD program to ensure that his or her MWD teams are technically, operationally, and administratively proficient.

b. AR 190-12 requires that the unit commander conduct a monthly inspection of handlers, dogs, training, team utilization, team proficiency, equipment, and kennel facilities. A detailed, comprehensive inspection is necessary because of the complexity of a unit MWD program. Therefore, the specifications of the monthly inspections may be varied, provided that all aspects of the unit MWD program are inspected at least quarterly. A written record of inspections is required, and each monthly inspection should ensure

that corrective action has been taken on any deficiencies noted during previous inspections. Most inspections should be "working inspections" so interference with operational commitments can be minimized. Both announced and unannounced inspections should be made.

Section II Facilities

9-2. Kennels

Proper construction, maintenance, and sanitation are essential for the dog's health. Improper and faulty construction may not be apparent until after the facility has been occupied, but should be corrected as soon as possible to protect the dogs and handlers from hazardous conditions. The commander should check to ensure the following:

a. Kennel runs:

- (1) Are clean and free of animal wastes.
- (2) Have concrete surfaces smoothly finished and in good repair.
- (3) Have concrete block walls surfaced with smooth concrete or wainscot.
- (4) Have metal walls free of rust and dirt.

b. Houses or pallets are clean and in good repair. Look closely at inside corners and underneath the pallet or house since these are common breeding places for insects and parasites. Houses or pallets that have been chewed on may indicate a bored dog. Check the dog's training record to ensure that it is being used and trained properly.

c. Floor slope allows for natural drainage of liquid wastes from runs and houses.

d. Water buckets are clean and filled with an adequate amount of water. Also, ensure that the drinking water supply is adequate.

e. Fencing and lighting are adequate and proper warning signs are posted. Check for loose fencing, holes in the fence or ground under a fence, or sharp objects which may cause injury to a dog. All electrical cords should be out of reach of the dogs.

f. Drainage gutter is free of animal wastes, hair, and other foreign matter. Also, ensure that stools are removed, not washed down the drain.

g. The plumbing system is adequate to handle all drainage throughout the kennel facility (that is, no sewage back-up).

h. Kennel area (inside and out) is policed and free of dog stools.

i. Fire fighting equipment is available and serviceable.

j. The kennel area is free of standing water that could allow insect breeding.

9-3. Kennel support building

The commander should check to ensure the following:

a. The food preparation area is clean and all equipment is in good condition.

b. The food preparation area and the food storage area is neat and orderly. Food must be stored in rodent proof containers. Storage areas should be checked for signs of rodents or insects.

c. Feed pans are clean and do not feel greasy.

d. Hot water supply is adequate for food preparation and cleaning.

9-4. Training and exercise areas

The commander should check to ensure the following:

a. Training and exercise areas:

- (1) Are policed.
- (2) Are free of dog stools.
- (3) Have vegetation trimmed.
- (4) Are free of standing water.
- (5) Are free of rocks, glass, and other materials that could injure the dogs.

b. Fencing is in good repair with no loose wires that could cause injuries.

c. Holes are filled promptly, seeded, and packed.

d. Gate locks work properly and gates close automatically and securely.

e. The obedience course is in good condition with:

- (1) All obstacles present and properly constructed.
- (2) No loose boards or nails.
- (3) All obstacles properly painted with nonskid paint or other nonskid materials on surfaces traveled by the dog.
- (4) Wood surfaces reasonably smooth and free of splinters.

Section III Equipment

9-5. Leather and metal

The commander should check to ensure the following:

a. Leather is treated with a light coat of neat's-foot oil (saddle leather) or saddle soap (latigo leather).

b. All metal chains and snaps are clean and rust free.

c. Snaps have adequate spring tension to keep the snap in the closed position and work freely.

d. Equipment is stored in a clean, dry place.

e. Shovels, rakes, mowers, water hoses, and other equipment are clean, in good repair, and neatly stored.

9-6. Supplies

The commander should check to ensure the following:

- a. A 30-day supply of dog food for each dog is available.
- b. All food is stored in dry, rodent-proof containers.
- c. Food is rotated to use the oldest first to avoid spoilage.

d. Dog food is MSD (see para 6-24), or food specifically procured by direction of the veterinarian for special dietary requirements.

e. First aid kits, disinfectant, and cleaning equipment are readily available, of the correct type, and in sufficient quantity.

f. Medicines, ointments, and other prescriptions are being used as prescribed.

Section IV

Appearance and Condition of Dogs

9-7. Appearance

The commander should check to ensure the following:

a. The dogs appear healthy and properly groomed.

b. Coats are shiny and free of mud, dirt, and burrs.

c. Eyes are clear. Discharge from the eyes may indicate an illness and the veterinarian should be aware if there is a problem.

9-8. Physical condition

The dog's physical condition may be evaluated by observing the dog negotiate the obedience course (unless the dog has been exempted by the veterinarian). The dog's alertness and aggressiveness in training and while performing operational duties are also keys to its physical condition.

Section V

9-9. Veterinary inspections

The provost marshal should check to ensure that periodic veterinary inspections are being conducted. Frequency should depend on the nature and severity of any health or sanitation problems; however, at a minimum, quarterly inspections are to be made. Any deficiencies noted by the veterinarian during his or her inspection should be corrected as quickly as possible. The commander's inspection should ensure that all corrective action taken is both appropriate and adequate to avoid any continuing health or sanitation problem.

9-10. Veterinary instructions

a. The veterinarian may provide instructions to handlers and the kennelmaster regarding the:

- (1) Care of the dogs.
- (2) Feeding of the dogs.
- (3) Grooming of the dogs.
- (4) Medication for the dogs.
- (5) Physical conditioning of the dogs.
- (6) Materials for sanitation and for extermination of pests.

b. The provost marshal's inspection should verify that:

- (1) All materials, medications, and procedures prescribed by the veterinarian are present or being applied.
- (2) Sanitation instructions applicable to the kennels, the food preparation area, feed pans, and water buckets are followed.
- (3) Feeding records comply with instructions.
- (4) Medications are administered in specific quantities and according to the prescribed schedule.

9-11. Veterinary support

The provost marshal's inspection should verify that the veterinarian is providing adequate guidance to each of the handlers regarding the health, care, and feeding of their dogs. The completeness of first aid kits, the availability of medical supplies, and the ease of access to veterinary assistance are all indicators as to whether guidance is adequate. Although all units may not have direct or immediate access to a veterinarian, this assistance should be reasonably available. (Interpretation of reasonable may depend on the distance to the nearest veterinarian.) Further, the veterinarian is responsible for providing some medical training (at least first aid) to handlers. Training should occur with reasonable regularity so that handlers are able to properly care for a dog that is sick or injured until the veterinarian can respond.

Section VI Use and Training

9-12. Use

MWD team assets are of little value if they are not used. Qualified MP handlers can perform most MP missions better when employed as a team with his or her assigned dog. Proper care requires good planning, proper scheduling, and coordination. The types of duties performed should be varied so that the team's proficiency is maintained in all areas, and to keep the dog from losing its alertness and aggressiveness. Planning, scheduling, and use are to be documented on training and utilization records. The handler should be knowledgeable about use of force principles and show reasonable ability to apply this knowledge in real situations. An MWD team's performance while on duty should be observed to ensure that the handler is able to control the dog, and that the dog responds appropriately in real situations.

9-13. Training

Training records should be closely examined to make sure they are kept current and that proficiency training is conducted with sufficient regularity to maintain the MWD team's proficiency. A minimum of 4 hours of patrol dog training is required each week for patrol dogs and a minimum of 4 hours of detection training is required for detector dogs each week. To be effective, training must be planned, it must be scheduled, and records should be present to verify appropriate planning and scheduling. Weaknesses which are noted during use and training should be specifically identified, and corrective training should be conducted to avoid their repetition. A lack of corrective training indicates an exceptional dog or a handler and kennelmaster who are not honestly maintaining their training records. Any MWD team that is not performing as well as the records indicate should be required to undergo appropriate proficiency evaluation or validation tests (chap 3).

9-14. Handler knowledge

Handlers should be able to demonstrate their knowledge of dog handling and knowledge appropriate to their MP skill level. Handler knowledge includes handling, acting as a decoy, controlled aggression, obedience, scouting or patrolling, tracking (if appropriate), detection, and full understanding how an MWD team is operationally employed so that the team's performance always supports the accomplishment of the MP mission.

9-15. Demonstration of proficiency

All MWD teams should be required to demonstrate their proficiency, in one or more of the skills appropriate for the type of dog, during some phase of the inspection. A spot check of proficiency verifies that the records are a reasonably accurate reflection of reality. Proficiency standards are provided in chapter 3.

Section VII Training Aids Accountability

9-16. Narcotics training aids

Detailed instructions are provided in chapter 4 for the control, storage, security, and accountability of controlled substance training aids. The commander should spot check security and accountability records to be sure that records are being properly maintained, that monthly inventories and audits are being conducted as required, and that records completely account for a training aid disposal. At least some training aids should be weighed to verify that they are all still present. Disposition records should be checked to ensure that training aids destroyed were properly destroyed and witnessed. Any other disposition should also be properly documented.

9-17. Explosives training aids

Detailed instructions are provided in chapter 5 for the safe handling, transportation, control, security, storage, and accountability of explosives training aids. Inspections should verify that handlers who use explosives training aids are reasonably knowledgeable about the

characteristics of each of the explosives and the requirements discussed in chapter 5. Vehicles used to transport explosives should have a current safety inspection, and vehicles should be checked to determine if there are any apparent safety hazards that may have arisen since the last safety inspection. Training should be observed to be sure that handlers maintain safe distances and properly handle explosives. No training aid should be "cut" to a size smaller than that required (for example, one stick of dynamite). Any personnel involved in training with explosives training aids must have received all appropriate explosives safety training, and this training must be documented. The handler may be questioned to confirm the extent of his or her knowledge.

Section VIII Records

9-18. Administrative and medical records

The information on the front of the DD Form 1834 (Military Working Dog Service Record) is filled in at the 341st Military Working Dog Training Squadron when the animal is accepted into military service. The kennelmaster is responsible for the information on the back. This includes the handler's name, grade, social security number, date the dog was assigned to the handler, organization and installation. Verify that the information is correct. Medical records may be kept at the kennels or at the veterinarian's office at the discretion of the attending military veterinarian. Only veterinary personnel are allowed to make entries in the medical record. Administrative and medical records are sent to the gaining installation when the MWD team or the dog is transferred. When a dog dies or undergoes euthanasia, administrative and medical records are sent to the 341st Military Working Dog Training Squadron. The only records kept on hand in the kennel are for dogs assigned to the unit or installation.

9-19. DA Form 2807-R

Training and utilization time should be entered daily in the appropriate blocks along with appropriate ratings. If a dog is rated as continuously satisfactory, conduct a proficiency evaluation (full or partial) to determine if these ratings are done according to proficiency standards. Determine what actions were or are being taken to correct unsatisfactory proficiency. The deficiency and corrective action may be noted on the back of the form. Entries may be typed or handwritten. This is a working document, so there can be handler or kennelmaster notations. The record should still be reasonably neat so that it can be determined how and when the dog is being trained and utilized. The feeding and weight section are maintained daily to record the type and quantity of food consumed by the dog. Any feeding problems should be discussed with the veterinarian. The dog's weight is entered semi-monthly, and reflects the dog's weight at approximately the same times each month. A significant change in weight should be reported to the veterinarian by the handler.

9-20. DA Form 3992-R

a. Detector dog training must be properly documented. Each line item must indicate the number of training aids planted, the number of training aids found, and the search time.

b. Actual searches are recorded on the back of DA Form 3992-R. All appropriate entries should be completed for each case, to include verification by field test, lab test, or EOD of the type of substance detected.

c. The monthly computation of proficiency is based on training aid plants and finds only. Be sure that sufficient training is being conducted for the computation to be statistically valid (50 or more trials per month). Spot check the computation to be sure that the rating is accurate, especially for detector dogs at or near the proficiency standard. Determine what actions are being taken to retrain detector dogs that have fallen below the proficiency standard. Looking at several month's proficiency ratings can also help identify trends so that proficiency training can be intensified when a dog appears to be on a steady downward trend.

9-21. Controlled substances training aids accountability folder

Check each accountability folder to make sure that a clear audit trail exists, and that all controlled substances are accounted for. Each folder should have a DEA Form 222 (or DA Form 4137) showing the type and amount of each controlled substance received, a DA Form 4608-R showing how the procurement was broken down into individual training aids, and DEA Form 41 (or other appropriate documentation) verifying proper disposition of any training aids no longer being used. Verify the most recent inventory of training aids by comparing control numbers and amounts to those recorded on DA Form 4608-R. Check DA Form 4608-R to ensure training aids are signed out and returned on the same day. Any deviations from the same day requirement must be authorized in writing. Training aids are to be signed out and signed back in when being turned in. Weight deviations must be explained in writing or investigated, as appropriate.

Appendix A References

Section I Required Publications

AR 190-11

Physical Security of Arms, Ammunition and Explosives. (Cited in paras 5-6, 5-7b, and 7-40b.)

AR 190-12

Military Police Working Dogs. (Cited in paras 1-1, 1-7, 1-14, 1-15, 1-18a, 1-19a, 1-22, 2-2a, 2-31c, 2-34b, 2-35a, 2-35e, 2-38, 2-39f, 3-35a, 5-7a, 7-29, 9-1a, and 9-1b.)

AR 190-45

1-13, Military Police Law Enforcement Reporting. (Cited in para 2-44.)

AR 190-51

Security of Army Property at Unit and Installation Level. (Cited in paras 4-6a, 7-37, 7-40b, B-5d, and B-8d.)

AR 310-49

The Army Authorization and Utilization Policies and Criteria, and Common Tables of Allowances. (Cited in para 1-14.)

AFR 70-12/AR 700-81/NAVINST 10570.1/MCO 20570.1

DoD Dog Program. (Cited in para 1-1.)

Section II Related Publications

AR 40-1

Composition, Mission, and Functions of the Army Medical Department

AR 40-3

Medical, Dental, and Veterinary Care

AR 40-656

Veterinary Surveillance Inspection of Subsistence

AR 40-905

Veterinary Health Services

AR 55-355

Defense Traffic Management Regulation

AR 75-15

Responsibilities and Procedures for Explosive Ordnance Disposal

AR 190-14

Carrying of Firearms and Use of Force for Law Enforcement and Security Duties

AR 190-22

Searches, Seizures, and Disposition of Property

AR 190-40

Serious Incident Report

AR 210-10

Administration

AR 385-30

Safety Color Code Markings and Signs

AR 385-64

Ammunition and Explosives Safety Standards

AR 600-200

Army Command Policy

AR 611-201

Enlisted Career Management Fields and Military Occupational Specialties

AR 710-2

Supply Policy Below the Wholesale Level

AR 740-26

Physical Inventory Control

DA Pam 710-2-1

Using Unit Supply System (Manual Procedures)

FM 5-25

Explosives and Demolitions

FM 19-10

The Military Police Law and Order Operations

FM 19-15

Civil Disturbances

FM 19-30

Physical Security

FM 19-35

Military Police Working Dogs

DOD 4270.1-M

Construction Criteria Manual

DODD 3025.12

Employment of Military Resources in the Event of Civil Disturbances

DODD 5200.31

Single Manager for DoD Working Dog Program

DODD 6015.5

Joint Use of Military Health and Medical Facilities and Services

TC 19-5

Bomb Threats

TM 5-302

Army Facilities Components System: Design

TM 5-303

Army Facilities Components System – Logistic Data and Bills of Materiel

TM 5-809-1

Load Assumption for Buildings

TM 5-809-2

Concrete Structural Design for Buildings

TM 5-809-3

Masonry Structural Design for Buildings

TM 5-809-4

Steel and Aluminum Structural Design for Buildings

TM 5-809-5

Wood Structural Design for Buildings

TM 5-809-6

Structural Design: Structures Other than Buildings

TM 5-809-8

Metal Roofing and Sliding

TM 5-809-9

Structural Design for Thin-Shell Roof Construction

TM 5-809-10

Seismic Design for Buildings

TM 5-809-11

Design Criteria for Facilities in Areas Subject to Typhoons and Hurricanes

TM 9-1300-206

Ammunition and Explosives Standards

Section III**Prescribed Forms**

This section contains no entries.

Section IV**Referenced Forms**

Exact duplicates of any DA or DD forms generated by the automated Military Police Management Information System may be used in place of the official printed version of the form.

Forms that have been designated “approved for electronic generation (EG)” must replicate exactly the content (wording), format (layout), and sequence (arrangement) of the official printed form. The form number of the electronically generated form will be shown as -R-E and the date will be the same as the date of the current edition of the printed form.

DA Form 581

Request for Issue and Turn-in of Ammunition

DA Form 2028

Recommended Changes to Publications and Blank Forms

DA Form 2807-R (approved for EG)

Military Working Dog Training and Utilization Record

DA Form 3655

Crime Lab Examination

DA Form 3975

Military Police Report

DA Form 3992-R (approved for EG)

Narcotics or Explosives Detector Dog Training and Utilization Record

DA Form 4137

Evidence/Property Custody Document

DA Form 4607-R (approved for EG)

Controlled Substance Training Aid Utilization Record

DA Form 4608-R (approved for EG)

Controlled Substances Accountability Record

DA Form 4610-R

Equipment Changes in MTOE/TDA

DD Form 1834

Military Working Dog Service Record

DEA Form 41

Registrant's Inventory of Drugs Surrendered

DEA Form 106

Report of Theft or Loss of Controlled Substances

DEA Form 222

DEA Official Order Form for Schedule I and II Controlled Substances

DEA Form 223

Controlled Substances Registration Certificate

DEA Form 225

New Application for Registration Under Controlled Substances Act of 1970

DEA Form 225a

Renewal Application for Registration

SF 702

Security Container Checklist

Appendix B**Military Working Dog Authorizations****Section I****General****B-1. Scope**

The intent of this appendix is to furnish information that may be useful in planning an MWD program or adding MWD teams to an existing program. The guidelines and yard sticks contained in this appendix are not meant to be “absolutes” for utilizations, training, or maintenance. The following paragraphs do, however, give general guidance and information that should be considered when planning a program. Sections II to V contain performance standards that may be useful in determining the number and type of MWD teams needed. The user of this pamphlet will find all of the following information useful for writing authorization documentation statements, as well as for planning the local MWD program.

B-2. Authorizations

All initial authorizations should be probationary and the following will apply:

- a. Adjustment to be made based on actual utilization data.
- b. Baseline of 30 hours utilization to 4 hours training ratio (with trade-off when appropriate).
- c. Automatic review by respective MACOM after two years.

B-3. Clarification of specific terms

a. Utilization includes all missions (law enforcement, security, and combat support), whether patrolling, detecting drugs or explosives, or other functions (in combination) performed when handler and dog are being employed together as a team.

b. Training includes all training activities to maintain, improve, regain, or develop dog skills such as patrolling, scouting, tracking, detection of persons, detection of drugs or explosives.

c. Maintenance includes all activities related to care, grooming, health, and sanitation of the dog, including medical treatment, recuperative time, sickness, and so forth. Down time for medical reasons is the basis for under utilization or under training.

d. Trade-off is the adjustment between training and utilization necessary to reinforce basic skills or to add new skills. For example, 4 hours per week may be adequate to maintain detector dog proficiency or to train in new skills. Additional training may be justified at times and training hours increased accordingly. This increase in training time should be accompanied by an equivalent reduction in utilization time. However, training hours should not be increased merely as a substitute for lack of utilization.

Section II

Patrol Dog Yardsticks—Peacetime (Law Enforcement/Security)

B-4.

The start point for patrol dog posts (motorized or walking) is as follows:

- a. One per 30 hours of anticipated utilization.
- b. A multiplier of 1.2 (add-on).

B-5.

Factors influencing commitment or justification rationale include:

- a. Installation population (military, civilian, dependent and contractor).
- b. Geographic area served (square miles).
- c. Crime rates or rates of incidents on which presence of dog teams could reasonably be expected to have impact (for example, parking lot larcenies, vandalism, prowlers, house break-ins, schools/commercial activity break-ins, rapes/assaults in areas used as short cuts, IDS responses).
- d. Risk assessment (using AR 190-51) which takes into account:
 - (1) Types of activities and resources on the installation needing protection and the value of same (monetary and intrinsic).
 - (2) The vulnerability of resources.
 - (3) The effect of loss of resources on the Army's wartime capability.
- e. Type of installation access control (for example, closed, open, time-controlled).
- f. Crime rates in the local area.

B-6.

Amending the local TDA/TOE for "peacetime" by adding appropriate dog handler ASIs to the existing structure is the easiest way to start (or add to) a MWD program. A "plus-up" of TDA/TOE is the most difficult way to begin a program and should be the last resort.

Section III

Narcotic Detector Yardsticks in Peacetime (Law Enforcement/Security)

B-7.

Considerations listed in section II still apply, with additional considerations outlined below because of the additional skill of narcotics detection having been added. The start point for additional consideration in justifying narcotic detector dog teams may be any combination of the following:

- a. One authorization per 5000 population supported.
- b. One per 30 hours projected detector utilization.
- c. A multiplier of 1.2 (add-on).

B-8.

Factors for consideration which influence commitment or justification rationale include:

- a. Installation population composition (military, dependent, civilian, median age, and so forth).
- b. Crime rates associated with drug abuse; use/possession/sale/trafficking (general measure is one dog team per 100 use/possession cases annually).
- c. Level of self-admitted drug use based on survey data.
- d. Risk assessment based on AR 190-51 that considers the availability of narcotics (by type), cost, and geographic proximity to drug trafficking centers.

Section IV

Explosives Detector Yardsticks in Peacetime (Law Enforcement/Security)

B-9.

Considerations listed in section II still apply, with additional considerations outlined below because of the additional skill of explosives detection having been added.

a. The start point for additional considerations in justifying explosives detector dog teams is as follows:

- (1) One authorization per 10,000 population supported.
- (2) A multiplier of 1.2 (add-on).

b. Factors for consideration which influence commitment or justification rationale include:

- (1) Number of bomb threats annually.
- (2) Number of actual bombs/explosive devices found, and number of actual explosions.
- (3) Risk assessment on the following:
 - (a) Resources needing protection and their value.
 - (b) The vulnerability of resources.
 - (c) The impact of the loss of a resource on the Army's wartime capability.
 - (d) Threat posed (geography, political significance, and so forth).
 - (e) The probability of overt/covert attack using explosives.
- (4) Demographics; for example, Bureau of Alcohol, Tobacco and Firearms (BATF) survey of explosives incidents and the area being identified as a problem area.
- (5) Lack of availability or lengthy response time of explosive dogs from other Federal/State agencies in the area (for example, Federal Aviation Administration (FAA), local police, and so forth).

Section V

Patrol, Narcotic Detector, Explosives Detector Yardsticks or Considerations for Wartime Combat Support Role

B-10.

Basic patrol dog utilization in combat is contained in paras 2-26 through 2-30. In addition, consideration must be given to:

- a. Operation plans (OPLANs) being supported which may further justify dogs.
- b. Size, mission, and type of combat (or combat support, combat service support) organizations(s) being supported.
- c. Mission of unit(s) being supported.

B-11.

An additional wartime consideration for patrol dogs dual trained as narcotic detectors would be whether or not OPLANs being supported required deployment to the Middle East or Far East. The narcotics detection capability can be used during deployments to either location. This capability may also prove useful around ports of embarkation/debarkation, especially at sea ports.

B-12.

Additional wartime consideration for patrol dogs dual trained as explosives detectors can be found in any OPLAN being supported. Justification can be found in any of the following areas (not meant to be all inclusive):

- a. Terrorism threat.
- b. Insurgent threat (that is, during refugee control operations, insurgents may be detected by the hidden ordnance they may be carrying).
- c. Key facility security (that is, initial clearance and maintaining that clearance and security on a key bridge on a main supply route (MSR)).
- d. Detection of unexploded ordnance.

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CHAPTER 2

CIVIL DESIGN AND SITE DEVELOPMENT

2.0 CIVIL AND SITE DEVELOPMENT

2.1 Description

The site development consists of, but is not limited to, demolition of an existing one-story masonry and frame military working dog kennel, demolition of existing underground and overhead utility lines, underground fuel oil storage tank, chain link fence and wood fence; clearing and grubbing; site grading; construction of a new one-story military working dog kennel; construction of a bituminous paved driveway and parking lot, concrete sidewalk(s), chain link fence, utility lines, fire protection system, lighting, signs, and landscaping; storm water management, and erosion and sedimentation control during construction; antiterrorism/force protection; and preservation of existing trees.

2.2 Reference Requirements and Standards:

The following codes and standards of the most current edition shall be used as standards for new construction and life safety design. Where there is a conflict between the Request For Proposal (RFP) and the building codes and standards, the most stringent shall apply. This list is not intended to be a complete list. All work shall be designed and constructed to meet all State and Federal codes, standards and laws. Refer to the technical specifications for other standards and references not listed below:

A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, American Association of State Highway and Transportation Officials (AASHTO), 1994. The publication can be obtained through the web at: www.aashto.org

ARMY TM-5-822-2/AIR FORCE AFM 88-7, General Provisions for Geometric Design for Roads, Streets, Walks, and Open Storage Areas, Department of the Army, and of the Air Force, July 1987.

Accessibility Guidelines for Buildings and Facilities. Available from U.S. Architectural & Transportation Barriers Compliance Board, 1111 18th Street, NW, Suite 501, Washington, DC 20036-3894, (202) 653-7834 v/TDD or (202) 653-7863 FAX

ANSI D6.1, Manual on Uniform Traffic Control Devices (MUTCD) for Streets & Highways, Millennium Edition, dated December 2000.

ASME B31.8, Gas Transmission and Distribution Piping, 1 June 1999

AWWA M17, INSTALLATION, FIELD TESTING, AND MAINTENANCE OF FIRE HYDRANTS, 1989, American Water Works Association

AWWA C500, METAL-SEALED GATE VALVES FOR WATER SUPPLY SERVICE, 1993, American Water Works Association

AWWA C502, Dry-Barrel Fire Hydrants, 1994, American Water Works Association

AWWA C651, DISINFECTING WATER MAINS, 1992, American Water Works Association

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF CONSERVATION AND RECREATION (DCR), DIVISION OF SOIL AND WATER CONSERVATION, Stormwater Management Handbook, Volumes 1 and 2, First Edition, dated 1999.

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF CONSERVATION AND RECREATION (DCR), DIVISION OF SOIL AND WATER CONSERVATION, Stormwater Management Program, Technical Bulletins, No.1 through 7.

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF CONSERVATION AND RECREATION (DCR), DIVISION OF SOIL AND WATER CONSERVATION, Erosion and Sediment Control (ESC) Handbook, Third Edition, dated 1992. An electronic version can be obtained using the following link to the DCR website: <http://www.dcr.state.vaus/sw/e&s-ftp.htm>

DEPARTMENT OF DEFENSE ANTITERRORISM/FORCE PROTECTION CONSTRUCTION STANDARDS, December 16, 1999, interim standards.

FORT BELVOIR DIRECTORATE OF INSTALLATION SUPPORT, ENVIRONMENTAL AND NATURAL RESOURCES DIVISION, Tank Removal requirements/Procedures For Non-regulated Underground Storage Tanks Fort Belvoir, Virginia.

INSTALLATION DESIGN GUIDELINES (IDG) FOR FORT BELVOIR, latest edition, available from the Fort Belvoir Directorate of Installation Support (DIS),

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)- NFPA 24, INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES, 1995

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 54 - NATIONAL FUEL GAS CODE, 1999.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

SPECS INTACT - Federal Government Contract Specifications - Software can be downloaded from: <http://si.ksc.nasa.gov/specsintact/software/software.com>

UNIFORM FEDERAL DISABILITY STANDARDS (UFDAS)

UNIFORM FEDERAL GUIDE SPECIFICATIONS (UFGS)- Located online at: <http://www.ccb/ufgs/ufgstoc.htm>

VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)- Road and Bridge Standards, Volume 1, dated February 1, 2001.

2.3 SURVEYS

2.3.1 Existing Survey Data - The existing topographic mapping is limited to the enclosed plan (Sheet C-1) and the existing building layout (Sheet D-1), and is to be used solely for preparation of the RFP.

2.3.2 New Survey Data (General Requirements) - For site development and design of the proposed project, the Contractor shall obtain topographic surveys within the limits shown on Sheet C1. The required area is approximately 3.5 acres. Horizontal control shall be referenced to the Virginia State Plane Coordinate System (NAD83) and vertical control shall be referenced to National Geodetic Vertical Datum (NAD88). The survey shall

comply with all applicable sections of the National Map Accuracy Standards and Federal Geodetic Control Committee (FGCC) Geometric Accuracy Standards and Specifications for using Global Positioning System (GPS) Relative Positioning Techniques. The data collected in the survey shall include, but not be limited, to the horizontal location of all planimetric features, existing ground elevations, and types, sizes, capacities and invert elevations of utility lines. The data will be used to produce a topographic map having a contour interval of one (1) foot. All survey work shall be performed under the supervision of a surveyor registered in the Commonwealth of Virginia. The final approved survey shall be signed and sealed by this registered surveyor. For additional detailed requirements of the survey Scope of Work, the Contractor shall contact Mr. James Simms, Project Manager, United States Army Corps of Engineers (USACE) Baltimore District at telephone 410.962.6751 or FAX 410.962.6751. Mr. Simms can be contacted by E-mail at: James.L.Simms@usace.army.mil.

2.4 STAGING AND CONTRACTOR ACCESS

2.4.1 Staging Area - The location of the Contractor staging area shall be contained within the existing chain link perimeter fence shown on drawing Sheet C-1. The staging area shall be located as far away as possible from the dog training area, and visual obscurity from the training area shall be provided as necessary. Access to the existing kennel shall be maintained during construction of the new kennel.

2.4.2 Access Procedures - Contractors working full time on projects within the Fort must register their vehicles and get a windshield sticker that will allow for unimpeded access under normal threat conditions. Information about vehicle registration and temporary passes can be obtained by calling the Provost Marshall Office at 703-806-4024, or visiting the office in person. The office is located at 6080 Abbot Road, which is Building 2124.

2.4.3 Access Route(s) - The Contractor shall coordinate the access route(s) within the limits of Fort Belvoir, subsequently referred to as the "Fort", with the Provost Marshall's Office and the Directorate of Installation Support (DIS) when registering vehicles and obtaining temporary passes. Access shall be via U.S. Route 1, through Tulley Gate, which is located on Pohick Street, Theote Road, 16th Street, and Pratt Road.

2.5 DEMOLITION

2.5.1 General Requirements - Prior to any work being performed, the contractor shall hire a locator company to locate all underground utilities, and verify the type, composition, and/or size. The Contractor shall remove the existing one-story masonry and frame dog kennel building, dog runs (concrete paving with chain link perimeter fence) and U-shaped concrete waste removal trench, chain link fence, bituminous pavement, miscellaneous concrete slabs, existing sanitary sewer lateral and grinder pump, water service line, trees, brush, and miscellaneous concrete slabs shown on Drawing C-1. The existing wood utility poles, overhead electric lines, and transformers shall be removed in accordance with the requirements of Section 9 - Electrical. All mature and thriving trees, and any recently planted trees on or adjacent to the site, shall remain and be incorporated into the design.

2.5.2 Underground Storage Tank Removal - The contractor shall remove an existing 550 gallon underground fuel oil storage tank located adjacent to the

existing kennel building. The tank contains No.2 heating oil used for heat and domestic hot water. The tank passed a tightness test on April 23, 1999, but it has not been tested since that date. The removal shall be in accordance with the Tank Removal Requirements/Procedures For Non-regulated Underground Storage Tanks, Fort Belvoir, Virginia. The Contractor shall obtain a tank removal permit from the Directorate of Installation Support, Environmental Division (DIS-ENRD), prior to scheduling the excavation of the tank system. DIS-ENRD can be contacted by telephone at (703) 806-4007 or in person at Building 1442, Suite 200. The removal of the tank shall be performed within twenty (20) working days of obtaining the permit. It is mandatory that a representative of DIS-ENRD be present when the tank is removed and any evidence of petroleum-contaminated soil be reported immediately to DIS-ENRD. Therefore, it is critical that the Contractor coordinate the removal with DIS-ENRD in a timely manner to ensure that a representative of DIS-ENRD is available to witness the tank removal and observe the condition of the tank and surrounding soil. If there are any questions, the Contractor may contact Ms. Ann Engelberger, Chief of the Environmental Branch of the Environmental and Natural Resource Division, at (703) 806-4007 See attached Tank Removal.

2.5.3 Existing Utility Lines - All existing utility lines to remain in place shall be protected during the demolition and construction process. The Contractor shall be liable for all damages should they occur.

2.5.4 Hazardous Materials or Waste - Hazardous materials or waste are not likely to be encountered at this site. The presence or absence of radon at the site is unknown. Documentation of the results of a "site categorization" investigation will be furnished by the Fort's Directorate of Installation Support (DIS).

2.5.5 Final Site Condition - Excavations resulting from the demolition operation shall be backfilled with satisfactory material, compacted in accordance with Section 01011, Chapter 3-6, Geotechnical Report and Requirements, Paragraph III, Subsection B. and topsoiled and seeded in accordance with Section 01011, Chapter 10-5.

2.5.6 Disposal - All debris and/or waste materials shall be disposed of outside the limits of Government controlled lands. Disposal shall be in accordance with the federal, state, and local regulations. The Contractor shall notify the Contracting Officer if any material to be disposed of is found to contain hazardous, toxic, biological, or radiological substances. Rubbish and debris shall be removed from Government property daily to avoid accumulation at the project site. The Contractor shall specify the demolition in the Uniform Federal Guide Specifications (UFGS) Section 02220a - DEMOLITION.

2.6 ANTITERRORISM/FORCE PROTECTION REQUIREMENTS

2.6.1 Only minimum antiterrorism/force protection measures are required at the site. The measures shall be designed in accordance with the Interim Department of Defense Antiterrorism/Force Protection Construction Standards. Prospective bidders shall maintain a minimum eighty-two (82) foot setback from the building to the new proposed eight (8) foot chain link fence and gate shown on Sheet C-1. Any dumpster(s) or exterior mechanical or electrical units shall be located a minimum of thirty (30) feet from the kennel building. A new, motorized rolling chain link fence gate with a card reader,

shall be provided in the perimeter fence across the new driveway at the location shown on the drawings. Final authority and approval of force protection requirements shall be coordinated with the Fort Belvoir Provost Marshal at 703-806-4024. Also, see Chapter 1 of this RFP for additional information concerning antiterrorism/force protection requirements.

2.7 NEW CONSTRUCTION

2.7.1 General Requirements and Site Layout

The new construction project is a facility for the 212th Military Police Detachment of the Provost Marshall Office. The unit conducts training of and provides shelter for military working dogs in support of guard, narcotics, and explosive missions at the Fort, within the National Capital region, and support of missions through out the United States. Site planning, layout and landscape design for the facility shall be focused to meet the Fort's design emphasis presented in the Fort's Installation Design Guide (IDG). The finished project will consist of the optimum layout of all of the features required, including but not limited to the kennel building, parking lot, access road or driveway, drainage, storm water management systems, utility lines, and landscaping. Wetlands, a one hundred (100) year floodplain, historic/cultural resources, and unexploded ordinance are not known to occur on this site.

The Contractor shall locate the features for this project within the limits shown using the attached drawing Sheet C-1 in accordance with the requirements/restrictions listed on them.

Access to the site will be from 16th Street and Pratt Road. Access via sidewalks/clear areas around facility shall meet the minimum customer requirements.

Additional items of consideration in siting the project features will be the location of the dog training area, access for pedestrians and vehicles, safety, fire protection, force protection, aesthetics, and environmental concerns. Outside mechanical and electrical units and dumpsters, etc., shall be screened with suitable landscaping or walls as per the Fort Belvoir Installation Design Guidelines (IDG). For the detailed requirements for location of outside units and dumpsters relative to the kennel building, see Chapter 2.6 ANTITERRORISM/FORCE PROTECTION REQUIREMENTS and Chapter 4 - NEW BUILDING, Para. 4.3.3. Any storm water detention system shall be located on the site to accept runoff from the entire project.

2.7.2 Open Turf Area

Open turf areas shall be designed in accordance with Chapter 3 - LANDSCAPING.

2.7.3 Parking and Access Drives

2.7.3.1 A total of eighteen (18) parking spaces shall be provided. This number shall include one (1) handicapped accessible space. All of the required parking shall be designed to fit on the site, but all of the spaces do not have to be immediately adjacent to the front of the building. The parking area(s) and driveway shall be designed to meet traffic flow requirements and to provide convenient and safe access.

2.7.3.2 The parking lot configuration shall be in accordance with the IDG. Parking spaces shall be 9.5' wide by 18' long. Parking lots with parking on both sides and having vehicles oriented at ninety (90) degrees to the flow of traffic shall have a minimum aisle width of twenty-four (24) feet. Parking lots and access roads shall be constructed of bituminous pavement. The use of curbs or curb gutters for parking lots and roads is contingent on the overland flow patterns for storm water runoff that are developed for the site, and the selected storm water system.

2.7.3.3 The new driveway shall be two (2) lanes and have a minimum width of twenty (20) feet. The minimum turning radius shall be twenty-four (24) feet. The turning radius/access widths for fire trucks shall be coordinated with the Post Fire Department at 703-806-4194. The designer shall consider the types of vehicles traversing and parking at these facilities. Vehicles shall include the following: passenger cars and trucks, single unit delivery trucks, fire trucks, emergency vehicles, trash trucks, and utility vehicles. Traffic control signs and pavement markings shall be provided as necessary in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). Striping of the parking lots is required and all stripes shall be white.

2.7.4 Service Access - Service access may be from the parking areas to the exterior doors via new concrete sidewalks and pedestrian gates. A paved access driveway to the kennel for vehicles is not required.

2.7.5 Sidewalks

2.7.5.1 Exterior sidewalks shall be constructed along the perimeter of the building with connections to each exterior door. If curbs are used, depressed curb(s) shall be provided for handicapped accessibility at all intersections of walks and drives. The sidewalks shall be constructed of a minimum of four (4) inches of concrete with four (4) inches of bedding, and shall contain minimum (temperature and shrinkage) reinforcement. The minimum width shall be six (6) feet. Sidewalks located parallel to curbs shall be set back a minimum of six (6) feet from the curb.

2.7.5.2 The sidewalks shall be constructed of concrete, which has a minimum compressive strength of three thousand (3000) pounds per square inch (psi). Contraction joints shall be spaced at five (5) feet; expansion joints shall be constructed at a maximum spacing of thirty (30) feet and at the intersection of walks and curbs.

2.7.6 Curb and Gutter and Dumpster Pads

If curbs are used along the driveway, they shall be the combination concrete vertical curb gutter type. Rolled combination curb and gutters are not permitted. Depressed curbs shall also be provided as necessary for pavement drainage. A reinforced concrete dumpster pad with access from the driveway for trucks shall be provided adjacent to the building. Concrete sidewalk shall be used to provide access the new building.

2.7.7 Pavement

The pavement design analysis shall meet the requirements specified in Section 01011, Chapter 3-6, "Geotechnical Report and Requirements".

2.7.8 Provisions for the Handicapped

Ramps and parking spaces for the handicapped shall be provided in accordance with the latest edition of the Uniform Federal Accessibility Standards (UFAS).

2.7.9 Street and Building Signs

Street and traffic control signs shall conform to the Manual of Uniform Traffic Control Devices (MUTCD). Non-traffic control signs as well as building signs shall conform to requirements of the Fort and shall match adjacent area signs. See the sign information provided in the Fort Belvoir Installation Design Guide (IDG).

2.8 GRADING

2.8.1 General

Positive drainage shall be provided for all areas and existing drainage ways. Swales between buildings and parking areas shall be avoided, if possible. If not possible, they shall be graded for positive flow but flat enough to easily permit mowing and maintenance. Parking areas shall be graded such that storm water is directed off to the sides and not down the center of the parking area. Earthwork shall be balanced to the extent possible without compromising the design. Retaining walls and/or reinforced earth slopes shall only be used if necessary to locate the entire site features within the limits given (see Chapter 2.7 - NEW CONSTRUCTION). For this contract, existing trees shall not be removed from the site. No grading shall be done within drip lines of existing trees to be preserved.

2.8.2 Adjustment of Existing Structures

The elevation of all existing manhole castings, valve boxes, or inlet frames shall be adjusted to meet the new finish grade elevations. Grade adjustment shall be accomplished using precast concrete rings, brick or masonry units and cement mortar. The maximum height of any adjustment shall be twelve (12) inches. Cement mortar shall be used where the required adjustment is one (1) inch or less. Where inlets, manholes, or valve boxes fall within a roadway or parking area, the frames and covers shall be heavy-duty (HS20-44 rated). All structures shall be of a type suitable for the intended use and shall conform to the requirements of the applicable section of these specifications.

2.8.3 Borrow and Waste

Borrow materials shall be obtained from sources outside the limits of Government-controlled land. The source of borrow material shall be the Contractor's responsibility. Approved materials shall be those classified in ASTM D 2487 as GM, GC, SW, SP, SM, SC, and CL and shall be free of trash, debris, roots or other organic matter, or stones larger than three (3) inches in any dimension. These requirements shall be addressed in the specifications developed by the Contractor. The Contractor shall obtain from the owners the right to procure material, shall pay all royalties and other charges involved, and shall bear all the expense of developing the sources, including rights-of-way for hauling. Any surplus suitable materials not required for fill shall be removed from the Fort. Non-suitable materials shall be disposed

of by the Contractor at his own expense and responsibility outside the limits of Government-controlled land at a location that meets Federal, State and Local requirements.

2.8.4 Sidewalk and Curb Grades

Concrete walks shall have a minimum transverse grade of two (2.0) percent. The maximum desirable longitudinal walk grade shall be four (4.0) percent and an absolute maximum grade of 8.3 percent. The use of steps in walks shall be avoided. The use of single riser steps is especially discouraged. When steps are unavoidable, they should have at least three risers, and handrails.

2.8.5 Transverse Parking Area Grades

- a. Desirable minimum of two (2.0) percent.
- b. Absolute minimum of one and one-half (1.5) percent for flexible pavement and one (1.0) percent for rigid pavement.
- c. Maximum of two (2.0) percent at handicap parking.

2.8.6 Longitudinal Parking Area Grades

- a. Maximum of five (5.0) percent

2.8.7 Ramp Grades

- a. Must comply with ADAAG standards.

2.8.8 Gutter Grades

- a. Desirable minimum of 0.8 percent.
- b. Absolute minimum of 0.5 percent.

2.8.9 Building Floor Elevation

- a. The building finished floor elevation shall be set to ensure that the required minimum and maximum grades are met.

2.8.10 Grades Away From Building

- a. Five (5.0) percent
- b. Greater than ten (10) feet from building- Two (2.0) percent minimum in the direction of drainage.

2.8.11 Overland Grades

- a. Minimum - Two (2.0) percent
- b. Maximum- Ten (10.0) percent. Steeper grades/ retaining walls may be used on the perimeter of the site.

2.8.12 Ditch Slopes

- a. Minimum - One (1.0) percent for channelized flow.

2.8.13 Ditches

Ditches shall be designed to the greatest extent possible with flow velocities that do not result in erosion when utilizing a vegetative lining. Otherwise, lining materials that withstand design velocities shall be used to prevent erosion. Design velocities for synthetic lining materials shall be in accordance with manufacturer test results. A design storm with a return period of at least ten (10) years shall be used to determine erodibility of ditches and swales.

2.9 STORM DRAINAGE

2.9.1 Determination of Storm Runoff

The computation of runoff will be accomplished by the Rational Method, as defined by the Department of the Army Technical Manual TM 5-820-4. Where detailed consideration of storm water retention is required, computation should be by unit-hydrograph and flow-routing procedures.

2.9.2 Design Storm Return Period

Storm drains and culverts shall be sized for a design storm with a return period of ten (10) years.

2.9.3 Storm Water Management

The storm water runoff for this project site shall be managed using one or more bioretention (rain garden) basin(s) as required for Best Management Practice (BMP). The basin(s) shall be designed to hold the first one-half ($\frac{1}{2}$) inch of rainfall runoff. Design criteria for bioretention basins may be found in the Commonwealth of Virginia, Department of Soil Conservation and Recreation, Storm Water Management Handbook, Volumes 1, Chapter 3, Section 3.11, Minimum Standards for Bioretention Basins. Landscaping of the basin(s) shall be in accordance with typical details shown in the Storm Water Management Handbook. The Contractor shall submit a Storm Water Management (SWM) plan thru the United States Army Corps of Engineers Baltimore District (NAB), to the Fort Belvoir Environmental and Natural Resource Division (DIS-ENRD), for review and approval.

2.9.4 Storm Drainage System Design

The Contractor shall be responsible for the complete design of the storm drainage system. The use of curb openings with flumes to drain water from streets and parking areas with curbing will be permitted.

Structures shall be located at all changes in direction of storm drain lines, at the intersection of two or more storm drain lines, and where required to intercept rainfall runoff. Storm runoff in streets and parking areas with curbing will be collected using curb inlets or area inlets. Drainage of runoff from turfed areas onto pavements shall be minimized. Where possible, a minimum drop of 0.2 feet between inverts of equal diameter storm drainpipes shall be provided at the centerline of drainage structures. Where storm

drainpipes are of different diameters, the pipe crown elevations should be matched at the drainage structure. Storm drainpipes shall have a minimum diameter of fifteen (15) inches. Storm drainpipes shall be located outside of paved areas to the extent possible. Under no circumstance shall storm drainpipes be located beneath buildings. Erosion protection shall be provided for the outlets of all storm drain structures.

All storm drain pipes and structures shall be specified in UFGS Section 02630A STORM DRAINAGE SYSTEM. Submittal of pipe samples is not required.

2.9.4.1 Hydraulic Design

New storm drainpipes shall be designed for gravity flow during the ten (10) year design storm unless otherwise approved by the Government. The hydraulic grade line shall be calculated for the storm drain system and all energy losses accounted for. Design computations shall adhere to procedures contained in TM 5-820-4. Storm drain systems shall be designed to provide a minimum flow velocity of 2.5 feet per second (fps) when the drains are one-third or more full.

2.9.4.2 Manholes

The diameter of manholes shall be large enough to accommodate pipes entering/exiting the manhole. The manholes shall be constructed of precast concrete, and shall have cast iron frames with a minimum opening diameter of thirty (30) inches. Galvanized steel ladders shall be provided in all manholes with a depth exceeding twelve (12) feet in accordance with UFGS Section 02630A STORM DRAINAGE SYSTEM.

2.9.4.3 Area Inlets

Area inlets and grates shall be properly sized and designed to accommodate the design flows. A safety factor shall be included when determining the flow capacity of the inlet grates to account for clogging by debris.

2.9.4.4 Curb Inlets

The location of parking area curb inlets at building entrances shall be avoided if possible. Curb inlets along the two-lane driveway shall be spaced and sized so that the flow in the gutter and ponded areas at low points does not cover the driveway crown. Grates for inlets shall be bicycle safe.

2.9.4.5 Headwalls and Flared End Sections

Unless otherwise approved, flared end sections shall be provided at the ends of culverts and at storm drain outfalls. Headwalls may be used if required by the existing site topography. Precast concrete head walls will also be permitted. Protection from erosion at head wall and flared end section outfalls shall be provided as needed.

2.9.4.6 Culverts

Culvert pipes shall have a minimum diameter of eighteen (18) inches wherever possible, or low head pipes with equivalent capacity shall be used. The culverts shall be designed with a maximum allowable head that does not exceed the elevation of the sub grade of any adjacent road.

2.9.5 Roof Drains

Drainage from the roof areas shall be designed as to not cause an ice hazard. Gutters and downspouts shall be designed for an event with a return period of twenty-five (25) years. Gutters shall be equipped with screens/covers to prevent the accumulation of leaves and debris. The covers/ grates shall be designed to allow with access for cleaning and maintenance. Downspouts, which are located in areas that could cause a safety or maintenance concern, shall be collected underground and conveyed to the storm drainage system. Design of underground roof drain collection systems shall be done in accordance with the procedure in the National Standard Plumbing Code. Connections from downspouts to the underground collection pipes shall be using a cast iron boot. Downspouts discharging to the surface shall be provided with splash blocks.

2.9.6 Storm Drain and Culvert Pipe

The Contractor shall select the appropriate storm drain and culvert pipe materials from the options specified in UFGS Section 02630A STORM DRAINAGE SYSTEM. 2.9.6.1 General - All storm drain pipes twelve (12) inches or larger shall be reinforced concrete. Pipe, bedding, and backfill shall be of adequate strength (or stiffness) to support the earth, live, and construction loads imposed on the pipe. Only pipe materials that have a minimum design service life of fifty (50) years shall be allowed for permanent installations. As a minimum, all pipe joints shall be soil tight. The Contractor shall specify watertight resilient pipe connectors at drainage structures when the water table is at or above the pipeline.

2.9.6.1 Concrete Pipe

Reinforced concrete pipe shall be a minimum Class III. Type I cement may be used only when sulfates in the soil are 0.1 percent or less and dissolved sulfates in the effluent are 150 parts per million (ppm) or less. Type II cement may be used only when sulfates in the soil are 0.2 percent or less and dissolved sulfates in the effluent are 1,500 ppm or less. Only Type V cement may be used if sulfates in the soil exceed 0.2 percent or dissolved sulfates in the effluent exceed 1,500 ppm. Concrete pipe shall be assumed to have a minimum design service life of 50 years unless the Contractor determines that conditions at the site will reduce the service life. Concrete culverts and storm drains shall be protected by a minimum of three (3) feet of cover during construction to prevent damage before permitting heavy construction equipment to pass over them during construction. The minimum cover between the top of pipe and the final grade elevation shall be in accordance with the pipe manufacturer's recommendations

2.10 WATER AND SANITARY SEWER SYSTEMS

2.10.1 Water System

2.10.1.1 The new service line for domestic water supply shall be connected to the existing eight (8) inch cast iron water main that crosses Pratt Road between Building Nos. 1107 and 1108 to the new kennel building. For the fire

system water supply, the new service line shall be connected to the existing eight (8) inch cast iron main that serves the existing dog kennel building, and shall also be connected to the new domestic water supply line within the building to complete a loop.

2.10.1.2 Piping materials and installation beyond five (5) feet from the building shall comply with Section 02510- Water Distribution System except as noted herein. Piping less than three (3) inches in diameter shall be copper pipe. Piping three (3) inches in diameter or larger shall be limited to cement lined ductile iron. Underground water lines shall be installed to provide a minimum of four (4) feet of earth cover above the pipe from the finished site grade. After construction is complete, the Contractor's registered professional engineer shall certify that the construction was completed in accordance with the approved plans and specifications.

2.10.1.3 Distribution mains and sectional valves shall be arranged such that a combination of two fire hydrants, or one sprinkler system and one fire hydrant, are always available to protect the facility in case of a single break anywhere in the system. The water system shall be capable of supplying at least 50% of the fire demand in the event of a single pipe break. Fire flow requirements for sprinkler system and outside hose streams shall be in accordance with Military Handbook 1008C. The fire demand shall equal the sum of the sprinkler demand, hose demand and one-half of the domestic demand. Sprinkler and domestic water may be supplied through a bulk underground line with services separated inside the utility room.

2.10.1.4 There is one existing fire hydrant (No.11-25) adjacent to the existing kennel building. See Drawing C-1 for the location. The Fort Belvoir Fire Protection group will perform a hydrant flow test and provide the results to the Contractor. Since the existing hydrant is located on the existing eight (8) inch cast iron line that will be tapped for the new fire system service line, the Contractor may use the flow test results to aid in the design of the new line.

2.10.1.5 The Contractor shall submit layout drawings of the proposed piping system for approval. Connection points to the existing system shall be shown as well as hydrant flow test data. The Contractor shall provide design calculations showing that the flow and pressure requirements for domestic and fire demands are met. Test pits shall be made at connection points to confirm size, material and depth of existing water mains. Any discrepancies shall be reported to the Contracting Officer. A Hazen-Williams friction coefficient (C) of one hundred twenty (120) shall be used for existing mains and one hundred thirty (130) for new mains.

2.10.1.6 Interruptions to service for making connections shall be arranged and scheduled through the Contracting Officer. Dry connections shall require isolation of piping between existing valves. Before starting any work, the Contractor shall locate all valves that will be used to isolate the system. Operation of valves shall only be done under the supervision of the Post Water Department and the Contracting Officer. Outages for dry connections shall be scheduled as directed by the Contracting Officer; all affected lines

shall be disinfected. A work plan shall be submitted to the Contracting Officer for approval before starting any work. Outages shall be scheduled at least forty-eight (48) hours in advance through the Fort Water Department and Contracting Officer.

2.10.1.7 Underground piping for a dedicated sprinkler service line (if ductile iron) shall have cathodic protection and bonded joints. Cathodic protection is not required for a combined domestic / sprinkler service line.

2.10.1.8 Water distribution mains (lines) shall be considered as that part of the system supplying fire hydrants. The lines shall be looped with no dead ends and be of adequate size to satisfy both domestic and fire flow requirements. They shall not be less than eight (8) inches in diameter. Pipe, valves, and all other materials shall meet the American Water Works Association (AWWA) standards for a one hundred fifty (150) pounds per square inch (psi) working pressure system.

2.10.1.9 Service lines shall be of sufficient size to furnish water to the building in the quantity and at the pressure required by National Standard Plumbing Code. Domestic flow shall be determined on a fixture unit basis. Maximum velocity shall not exceed six (6) feet per second (fps).

2.10.1.10 Adjacent utility lines shall be separated for safety reasons. Separation between water and sewer lines shall be in accordance with Part 3 Execution of Section 02510. Water lines shall not be laid in the same trench with sewer lines, gas line, fuel lines, or electrical wiring.

2.10.1.11 Fire hydrants shall be dry barrel type conforming to AWWA C502. A shutoff valve shall be provided between the hydrant and point of connection to the distribution line. At least one (1) fire hydrant shall be made accessible around the facility from the adjacent driveway. The hydrant lateral shall have a minimum diameter of six (6) inches for lengths of up to two hundred (200) feet. For a lateral between two-hundred (200) and three-hundred (300) feet long, the diameter shall be increased to eight (8) inches, and an eight (8) inch by six (6) inch reducer shall be installed at the hydrant. Hydrant hose and pumper connections shall comply with Post Fire Department Standards. The hydrant shall be located at least (40) feet from the building.

2.10.1.12 The Contractor shall install an adequate number of valves in the system. Curb stops are not permitted. Each building service and fire hydrant shall be provided with a main shut off valve and valve box, and shall be readily accessible to maintenance and emergency personnel. A post indicator valve (PIV) shall be installed on each sprinkler service. Shutoff valves located in sidewalks are prohibited. Valves three (3) inches and larger shall conform to AWWA C500; smaller valves shall conform to MSS SP 80, Type 1, Class 150.

2.10.1.13 Valve boxes shall be cast iron. Boxes shall be the extension type with slide type adjustment and flared base. The word "WATER" shall be cast in the cover. The boxes shall be of a length such that they will be installed, without full extension, to the depth of cover required over the pipe at the valve location. Valve boxes shall be suitable for use in vehicular traffic. Where feasible valve boxes shall be located outside of roads and streets.

2.10.1.14 All valves and fire hydrants located near roadways shall be protected from traffic. If a post indicator valve or fire hydrant is located closer than ten (10) feet from an access drive, parking area or street, bollards shall be provided. A six (6) inch concrete curb around the traffic area is acceptable in lieu of bollards. Bollards shall be painted as directed.

2.10.1.15 Connections to mains shall be made by a tapping sleeve and valve whenever feasible to minimize disruption of service. If a tapping sleeve cannot be used, the connection shall be made with a mechanical tee and valve. Sprinkler service lines shall be connected to the main in accordance with NFPA 24. Post indicator valves shall be located a minimum of forty (40) feet from buildings.

2.10.1.16 Thrust blocks shall be provided at changes in direction of flow on all water lines three (3) inches or larger in diameter and fire hydrants. Thrust block sizes shall be sized in accordance with the pipe manufacturer's installation manual.

2.10.1.17 Hydrostatic tests - All lines shall be subject to pressure and leakage tests in accordance with NFPA 24 - Part 3 Execution of Section 2510.

2.10.1.18 Disinfection - The Contractor shall disinfect all new water lines and any existing lines that do not remain fully pressurized during construction. Bacteriological disinfection shall conform to AWWA C651. Each section of service, hydrant lateral, and distribution line shall be tested. Personnel from the Contractor's commercial laboratory shall collect samples from each section of new and/or existing line. When the isolated section length exceeds three hundred (300) feet, intermediate line samples shall be taken every three hundred (300) feet or increment thereof. The State's approving authority for examination of potable water shall certify the commercial laboratory used by the Contractor. A copy of the results of the completed water sampling tests shall be submitted to DIS-ENRD.

2.10.1.19 Lead residual is not permitted in new water lines. Following bacterial disinfection and testing, the system shall be flushed at each hot and cold-water discharge point and tested for lead residual as indicated in Part 3- Execution of Section 02510.

2.10.1.20 Excavation, trenching and backfilling shall conform to Section 02316 Excavation, Trenching and Backfilling for Utilities Systems. Pipe bedding materials shall conform to ASTM C33, coarse aggregate, Size #67. Bedding shall be placed from six (6) inches below pipe to one (1) foot above the pipe for plastic materials, and to the spring line of the pipe constructed of other material.

2.10.1.21 Plastic marking tape, blue in color, and capable of being located by a metal detector, shall be provided above the pipe but 18-inches below grade. Minimum tape strength shall be 1750 psi lengthwise and 1500 psi crosswise.

2.10.1.22 Pipe penetrations through structures shall be sleeved. Sleeves shall be Schedule 40 with integral collar, and furnished with mechanical link seals between the sleeve and pipe.

2.10.2 Sanitary Sewer System

2.10.2.1 Building Sanitary System - The Contractor shall provide a new sewer line (lateral) to the Fort's existing gravity sewer system. It shall be constructed in such a manner that the line can be maintained easily without major disruption to building occupants. The sewer line for the building shall extend from the building to a new manhole adjacent to the building, and then to an existing sanitary sewer manhole in Pratt Road. The existing manhole is shown on Sheet C-1. The existing sanitary sewer lateral (unknown diameter and type) shall be removed as per SECTION 2.5 - DEMOLITION. The new manhole shall also be used to tie in the new kennel trench drain system described in Para. 2.10.2.2.

Then sewer line shall be designed as a gravity line and the use of lift stations is prohibited unless required invert elevations preclude the use of a gravity line. See drawing Sheet C-1 for the location of the connection of new line to the existing line. The existing line has adequate capacity to accommodate the flow from the new facility.

Materials and pipe installation beyond the five (5) foot line from the building shall conform to Section 02531 Sanitary Sewers: Gravity, except as noted herein. The construction of sewer lines under pavement shall be avoided whenever possible. Any active existing sewer lines located within ten (10) feet of the proposed building shall be relocated to at least twenty (20) feet beyond the building perimeter. Abandoned sewer lines under and within ten (10) feet of the building shall be removed. Any abandoned lines beyond the ten (10) foot distance shall be plugged with concrete.

2.10.2.2 - Kennel Sanitary System - The Contractor shall design and construct a continuous trench drain system for removing the wastes from the kennel interior and the exterior kennel runs. The trench drain shall have a minimum width of six (6) inches and a rounded bottom. The trench drains may be premanufactured, precast or cast-in-place. The interior drains shall be equipped with hinged grates located approximately two (2) inches above the finished floor elevation on the run side to allow for hose flushing of solid waste from the surface. Likewise, the exterior drains shall be equipped with hinged solid covers located approximately two (2) inches above the finished floor elevation on the run side to allow for hose flushing of solid waste from the surface, but prevent the collection of leaves and debris in the trench. Grates and covers shall be made of non-metallic or non-ferrous material.

The trench drain itself shall be designed hydraulically to move solid waste efficiently using a permanent water flush system. The flush system for the interior and exterior shall be operated independently, and any exterior flush valves shall be located below the frost line. The flush valves shall be self-draining and valve operators shall be accessible from above ground.

The waste shall be carried from the trench drains to a holding tank using a pipe(s) having a minimum diameter of six (6) inches. The holding tank shall be designed with a grinder pump to transport the waste to a new manhole located adjacent to the new building. The holding tank shall be sized to hold a minimum of four (4) days waste. The holding tank and grinder pump shall be equipped with a warning light and audible alarm to indicate any malfunction. The pump shall be constructed in a precast concrete utility box or manhole, separate from the holding tank, which is easily accessible for pump maintenance.

The kennel waste system shall be kept separate from the building waste system and both systems shall be connected to the Fort's gravity system using a new manhole and sewer line with gravity flow.

2.10.2.2 Building connections shall be sized based on drainage fixture units in accordance with the National Standard Plumbing Code (NSPC). The minimum diameter of building service laterals shall be six (6) inches. The minimum diameter of collector sewers shall be eight (8) inches. The flow in pipes shall be computed using Manning's Equation with a roughness coefficient (n) of 0.013. The minimum pipe slope shall be 0.62% for six (6) inch diameter sewer lines, and 0.40% for eight (8) inch diameter sewer lines. Flow shall be maintained, either by gravity methods or by pumping, in the existing sewer system at all times when making new connections. The Contractor shall submit all plans for maintaining sanitary sewer flow to the Contracting Officer for approval prior to starting any work.

2.10.2.3 Piping for sewer lines shall be limited to the following materials:

2.10.2.3.1 Plastic Pipe

Acrylonitrile-butadiene-styrene (ABS), ASTM D 2751.

Polyvinyl Chloride (PVC), ASTM D 3034, maximum SDR of 35.

High Density Polyethylene (HDPE), ASTM F714. The pipe shall have a smooth interior with corrugated exterior. Polyethylene shall be certified by the resin producer as meeting the requirements of ASTM D3350, cell Class 334433C. The pipe stiffness shall be equal or greater than 1170/Diameter (D) for cohesionless pipe trench backfills.

2.10.2.3.2 Cast Iron (CI), ASTM A74.

2.10.2.3.3 Ductile Iron (DI), AWWA C151.

2.10.2.3.4 Vitrified Clay/Extra Strength (XVC), ASTM C700.

2.10.2.4 Exterior cleanouts shall be provided for building waste piping at the five (5) foot line, at directional changes, and in the middle of straight runs longer than one-hundred fifty (150) feet. Cleanouts shall be the two-way type, which allows cleaning in either direction.

2.10.2.5 Sanitary sewer lines shall have a minimum cover of thirty (30) inches. Plastic green marking tape, capable of being located by a metal detector, shall be provided above the pipe at a depth of eighteen (18) inches below finished grade. The minimum tape strength shall be 1750 psi lengthwise and 1500 psi crosswise.

2.10.2.6 Manholes shall be provided at the points of connection to existing lines, at all changes in direction, and changes in size or slope of gravity sewer lines. They shall not be spaced more than three hundred (300) feet apart. Manholes shall be precast, reinforced concrete sections (risers) that conform to ASTM C478. The base section shall have a six (6) inch flange, monolithic with the riser, and shall extend at least sixteen (16) inches above top of pipe. Welded wire fabric reinforcement in the precast sections reinforcement shall conform to ASTM A 185. At least six (6) inches of

granular bedding shall be placed under the base. It shall be coarse aggregate Size #4 that conforms to ASTM C33, and shall be nominally compacted to provide a uniform, firm bedding layer. The inside diameter of the risers shall have a minimum diameter of four (4) feet, with a top section that can accommodate a manhole casting with a minimum diameter of thirty (30) inches. Manhole bench and invert channels shall be formed using cast-in-place concrete. Manhole joints shall be double-strip butyl rubber with mastic adhesive. Pipe connections shall utilize a watertight rubber boot or sleeve conforming to ASTM C923 or C443; sleeves shall be secured with a stainless steel clamp. Manhole steps shall be twelve (12) inches wide, rubber coated, rated for a three-hundred (300) pound loading, installed on sixteen (16) inch centers, and securely embedded in concrete. Frames and covers shall be ductile iron. The words "SANITARY SEWER" shall be cast on the cover and plainly visible. Placement of manholes where the tops will be submerged or subject to surface water inflow is prohibited. A drop connection shall be provided where the invert of the inlet pipe is more than eighteen (18) inches above the manhole floor. Manholes shall be designed for water uplift (buoyancy) assuming that the groundwater table can reach the top of manhole sidewalls. Pipe joints shall be located at a distance of two (2) feet minimum or no more than four (4) feet maximum from the outside wall of manholes.

2.10.3.7 Lines shall be tested for leakage by low pressure air testing. Low pressure air testing shall be done in accordance with the pipe manufacturer's recommendations. The Contractor shall visually inspect sections of the sewer line before backfilling to assure that joints are tight and the pipe is laid to proper line and grade. Lines shall be air tested using pneumatic plugs inflated to twenty-five (25) pounds per square inch gage (psig). Air shall be introduced into the sealed line until internal pressure is 4 psig greater than the average backpressure of any groundwater over the pipe. After a stabilization period of at least two (2) minutes, the pressure shall be adjusted to 3.5 psig and the air supply disconnected. The line shall be acceptable if the time required for the pressure to decrease from 3.5 to 2.5 psig is not less than the time computed as follows:

TIME REQUIRED IN MINUTES AND SECONDS FOR AIR PRESSURE TO
DROP FROM 3.5 PSIG TO 2.5 PSIG

Pipe Dia. (in) L =	100 ft	200ft	300ft
6	2:50	2:50	2:50
8	3:47	3:47	3:48

When times are less than specified, a satisfactory correction of the problem shall be made and the line retested. Testing, correction and retesting shall be made at no additional cost to the Government.

2.10.3.8 A deflection test for plastic pipe shall be made not less than thirty (30) days after the completion of all work including leakage test, backfill and placement of fill, grading, pavement, concrete, or superimposed loads. The test shall be conducted in accordance with the pipe manufacturer's recommendations. Installed pipe that shows deflections greater than 7.5% of the normal diameter of the pipe, shall be retested by a run from the opposite direction. If the retest also fails, the pipe shall be replaced at no cost to the Government.

2.10.3.9 Excavation, trenching and backfilling shall conform to Section 02316 Excavation, Trenching and Backfilling for Utilities Systems. Pipe bedding materials shall conform to ASTM C33, coarse aggregate, Size #67. Bedding shall be placed from six (6) inches below the pipe to one (1) foot above the pipe for plastic materials, and to the spring line of the pipe for other materials.

2.10.3.10 Pipe penetrations through structures shall be sleeved. Sleeves shall be Schedule 40 with integral collar, and shall be furnished with mechanical link seals between the sleeve and pipe.

2.10.3.11 Pipe connections to existing manholes shall utilize a watertight rubber gasket as specified for new manholes. Manhole benches shall be reworked as required to accommodate new flow directions. Existing manhole covers shall be adjusted flush with the finished grade in paved areas, and two (2) inches above finished grade in unpaved areas.

2.10.3.12 Adjacent facilities - Separation between water and sewer lines shall be in accordance with Part 3, Execution of Section 02531 Sewers: Sanitary, Gravity.

2.11 GAS LINES

2.11.1 General - The gas service line shall extend from the new building to the existing gas main at the intersection of Pratt Road and 16th Street. The Contractor shall provide design calculations for the required line size, pressure, and flow rate, which shall be based on the building demand. The Contractor is responsible for construction of the gas service line from the point of delivery within five (5) feet of the building. The point of delivery is the meter set assembly. The Washington Gas Company (WGC) will construct the service line from, but not including the gas meter, to the existing gas distribution main. The contractor is responsible for coordination all aspects of the construction with (WGC), including the cost of installation and payment for the work. Payment shall be made to WGC prior to the start of construction. The contractor is also responsible for coordination of the service line installation with the Fort's Directorate of Installation Support (DIS).

2.11.2 Service Interruption - Interruption of gas service shall be minimized during construction of the new line. The Contractor shall notify the Contracting Officer, in writing, at least ten (10) days in advance before connecting to existing lines.

2.11.3 Service Line - The service line shall be constructed of materials specified for gas. It shall be constructed as short and straight as possible with as few joints as practicable. Sharp changes in direction and tie-ins to existing lines shall be accomplished using standard fittings. Pressure testing of the line shall be completed prior to placement of any backfill. The line shall have a minimum cover of four (4) feet.

2.11.4 Shutoff Valves - The service line shall be equipped with a sufficient number of valves, having the same size as the service line, so that the line and building can be shutoff and/or isolated from the distribution main. The valves shall be contained in valve boxes.

2.11.5 Pressure Relief/ Regulators - The service line shall be equipped with pressure/relief valves to regulate the pressure of the line and provide a suitable method to prevent over-pressuring of the system in accordance with ASME B31.8 and NFPA - National Fuel Gas Code, 1999.

2.11.6 Pipe Protection - All metallic pipes shall have protective coating in accordance with Section 02550, Para. 2.7 and/or cathodic protection for corrosion control in accordance with Section 01011, Chapter 6.2, Electrical, General Requirements, Para 2.3 - Corrosion Control.

2.11.7 Meters - The gas meter for the building shall be suitable for accurately measuring the handling gas at the pressures, temperature, and volume required. The meter shall be equipped with an over-pressure protection.

2.11.8 Drips - The service line shall be supplied with drips and blow off lines at locations as required. Drips shall be a commercial unit of the approved type and capacity.

2.11.9 Excavation and Backfill - Excavation of trench for the pipe and backfill shall be as specified in Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS.

2.11.10 Underground Marking - A magnetic backed tape, yellow in color for gas pipe installation, shall be placed in the trench above the pipe for future location using a magnetic detector. The tape shall be buried eighteen (18) inches below the finished grade.

2.12 FENCING

2.12.1 Existing Fence

The existing chain link perimeter fence shall remain in place during construction of the new kennel building. However, the dog training area may be reduced in size to an area having minimum dimensions of eighty (80) feet by one hundred (100) feet in order to maintain the training function and facilitate construction of the new kennel building. Reduction of the training area shall be accomplished by relocating the existing south side perimeter fence. If the condition or physical parameters (i.e. height), of the south fence precludes its use, then new fence of the same type, height, and mesh opening shall be installed. The relocated or new fence shall tie into the existing perimeter fence. The wire mesh fabric shall be buried a minimum of twelve (12) inches below the existing ground elevation. The fence shall be equipped with single, interior, top rail extension arms designed to hold three (3) strands of galvanized smooth wire.

2.12.2 Temporary Construction Fence

The contractor shall also construct a temporary chain link fence having a minimum height of six (6) feet around the construction site to isolate the construction site from the existing dog training area. Top rail extension arms are not required. However, a solid, temporary visual barrier shall be constructed to obscure the view of the new construction from the existing dog training area. The fence shall be equipped with access gates that can be closed and padlocked.

2.12.3 Permanent Fence

2.12.3.1 Kennel Building - The new dog kennel building shall have a new chain link perimeter fence that encloses all sides of the structure except for the side that includes the main entrance. The fence shall be offset a minimum of fifteen (15) feet from the exterior building wall and tie into corners of the building. It shall have a height of eight (8) feet and be equipped with single, interior and exterior top rail extension arms designed to hold three (3) strands of galvanized barbed wire on each arm. Double leaf and/or single leaf gates for access shall be constructed at locations designated by the owner.

2.12.3.2 Dog Training Area - The existing chain link fence around the dog training area shall be replaced with a new chain link fence. It shall enclose an area that is approximately the same size as the existing area. It shall have height of eight (8) feet and the wire mesh shall be buried a minimum of twelve (12) inches in the ground. The fence shall be equipped with single, interior and exterior top rail extension arms designed to hold three (3) strands of galvanized smooth wire on the interior arms and three (3) strands of galvanized barbed wire on the exterior arms. A common fence may be used between the dog training area and the kennel building. At this location the requirements for the dog training area fence apply. Double leaf and/or single leaf access gates for access shall be constructed at locations designated by the owner. All single leaf gates shall be equipped with self-closing mechanisms.

2.12.3.3 Perimeter Fence - The existing chain link perimeter fence on the west side of the site shall be extended southeasterly, using the same type and height of new chain link fence, to meet the northwest corner of the existing perimeter fence at Building 1101. The existing fence gate across the driveway to the existing kennel building shall be demolished. Also, the existing perimeter fence along the north side of Building 1101 shall be extended northeasterly, using new chain link fence, across Pratt Road and tie into the existing west side fence of Building 1107. A new twenty (20) foot wide, motorized rolling gate with a card reader, shall be constructed in this fence at Pratt Road. This gate replaces the existing gate that was removed from the existing driveway.

2.13 PERMITS

2.13.1 Erosion and Sediment Control

The Contractor shall be responsible for selecting and implementing Best Management Practices (BMPs) to minimize pollutants in storm water discharges associated with construction activity at the construction site. The Contractor shall maintain all erosion and sediment measures and other protective measures in effective operating condition. All temporary erosion control measures shall be removed once the corresponding disturbed drainage area has been permanently stabilized. All land disturbing activities shall comply with the nineteen (19) minimum standards included in the Virginia Erosion and Sedimentation Handbook. The Contractor shall be responsible for compliance with the Commonwealth of Virginia's National Pollution Discharge Elimination System (NPDES) permit requirements for storm water discharges from construction sites in accordance with Section 01563 ENVIRONMENTAL PROTECTION of the specifications. Included in the permit requirements is the mandate for the Contractor to design and obtain approval for an Erosion and

Sediment Control Plan in accordance with the Virginia Erosion and Sedimentation Control Law, Regulations, and Certification Regulations (VESCL&R).

2.13.2 Storm Water Management

The Contractor shall obtain a Storm Water Management Permit from the Commonwealth of Virginia Department of Conservation and Recreation prior to construction. Refer to Chapter 2.9 - Storm Drainage, Para. 3 - Storm Water Management for details.

2.13.3 Excavation Permit

The Contractor shall be responsible for obtaining an Excavation Permit from the Fort's Directorate of Installation Support (DIS) prior to construction. Methods and/or limits of excavation shall be worked out with the Fort during this process.

TANK REMOVAL REQUIREMENTS/PROCEDURES FOR NON-REGULATED UNDERGROUND STORAGE TANKS FORT BELVOIR, VIRGINIA

1.0 - GENERAL - The Contractor shall furnish all materials, labor and equipment to properly locate and identify, excavate, and remove all tanks and associated appurtenances relating to the building to be demolished or site. Potentially dangerous situations may arise during performance of this work and the Contractor shall therefore provide only properly trained and experienced personnel for completion of this work.

1.1 - TANK REMOVAL PERMIT - The Contractor shall be required to obtain a tank removal permit, from the Directorate of Installation Support, Environmental and Natural Resource Division (DIS-ENRD), prior to scheduling the excavation of the tank system. DIS-ENRD can be contacted at by phone at (703) 806-4007 or in person at Building 1442, Suite 200. The removal of the tank shall be performed within 20 working days of obtaining the permit.

2.0 - TANK REMOVAL - The following procedure, and all current industry standards, shall be utilized when performing the requirements of this specification. The tank and associated utilities and appurtenances shall be removed and the excavation backfilled with clear soil prior to demolition of the building or contractor demobilization. The site shall be restored as appropriate.

The Contractor shall make all reasonable efforts to remove the tank by excavation as described below. However, in some instances (usually the result of unusual physical site constraints) this procedure is impractical and, in these cases, the Contractor may petition the DIS-ENRD for a modification of this procedure. The modification would include specifications to properly close the tank *in place*. Should this situation arise, the Contractor shall contact the DIS-ENRD for permission to modify the tank removal procedures described herein. Without specific written permission from the DIS-ENRD, tank closure in-place is not considered an acceptable practice.

2.1 - DISCONNECT THE SUPPLY AND RETURN LINES FROM THE BOILER

The Contractor shall be required to disconnect the supply and return lines from the boiler (or other applicable equipment) and allow all product inside the lines to flow back to the tank. The Contractor shall then cap off the lines by using screw-on caps or double-crimping of the line. Crimping the line requires the Contractor to fold over the end of the piping onto itself at least twice and crimp in a fashion that will not allow any product to leak from the line.

2.2 - UNCOVER TOP OF TANK AND DISCONNECT THE PIPING - The Contractor shall be required to uncover the tank from the soil surface to the top metal surface of the tank and piping. After exposing the top of the tank and piping, the Contractor shall disconnect all attached piping and cap off the ends of the piping. Any openings on the tank, except the fill pipe opening, and holes in the tank surface shall be sealed off using boiler plugs or caps.

2.3 - PUMP TANK OF ALL PRODUCT AND SLUDGE - The Contractor shall utilize a pump truck to effectively remove and transport all material remaining inside the tank. The Contractor is solely responsible for the removal and disposal of any remaining fuel and/or sludge removed from the tank in accordance with all current federal, state, and local laws. The remaining fuel and/or sludge must be manifested through the DIS-ENRD for appropriate government signature on all shipping documents. After removal of all material, the Contractor shall be required to seal off the fill pipe opening.

2.4 - REMOVAL OF TANK FROM EXCAVATION SITE - The Contractor shall remove the tank from the excavation site by rolling the tank towards the trench and lifting from the excavation without puncturing the tank. A strap or chain may be used to facilitate the removal of the tank from the excavation. The tank, after removal from the excavation, shall be placed on top of 6-mil plastic sheeting so that the opening in the top of the tank remains upright.

2.5 - REMOVE FUEL LINES TO BUILDING - The Contractor shall be required to remove the fuel supply and return line, vent lines, remote filler lines and any associated appurtenances without causing any residual product to be released into the environment. Ideally, all lines should be free of product and sealed prior to removal.

2.6 - REMOVAL OF CONTAMINATED SOIL AND SOIL SAMPLING - The excavation shall be limited to include only those soils required to free the tank from the ground. However, removal of visibly contaminated soil may be required as an Initial Abatement Measure to mitigate further impact to the environment. If visibly impacted soils (including free liquid petroleum hydrocarbons) are discovered during tank closure, the DIS-ENRD shall be notified immediately and will direct all further excavation. Soils shall be stockpiled in an area identified by the Contracting Officer or DIS-ENRD representative. All soil to be stockpiled shall be placed on top of two layers of 6-mil plastic sheeting and covered by one layer of 6-mil plastic sheeting with the entire stockpile area appropriately protected from storm water run-on/run-off. Suspected petroleum-contaminated soils shall be stockpiled separately from other excavated materials.

The Contractor shall be required to collect a minimum of two composite soil samples, each composed of 6-8 grab samples per composite, from the tank basin and the stockpile areas. The Contractor, at the direction and oversight of the DIS-ENRD, shall collect these soil samples and will be responsible for shipping and analysis of the soil samples, and will provide the DIS-ENRD copies of the analytical results for reporting/decision-making purposes. Please note that DEQ reporting requirements provide a 24-hr window for reporting of confirmed release so that analytical results must be provided to the DIS- ENRD immediately upon reception from the laboratory.

2.7 - DISPOSAL OF CONTAMINATED SOILS - No disposal of soils shall occur without the express authorization of the Contracting Officer and the DIS-ENRD. All contaminated soils shall properly handled and transported to an approved off-site thermal treatment and/or recycling facility and not landfilled.

2.8 - BACKFILLING OF THE EXCAVATION - The contractor shall backfill the excavated area with clean backfill and compacted to a 85% compaction rate in turf areas and 95% compaction in hardstand areas. Use of excavated soil or new backfill will be at the direction of the Contracting Officer and the DIS-ENRD.

2.9 - OPENING THE END OF THE TANK AND CLEANING - The Contractor shall be required to open the end of the tank by utilizing a non-sparking tool. Tanks shall first be de-vaporized using a current API method prior to cutting open the tank. All tanks will be cleaned prior to removal from Fort Belvoir. The cleaning process shall include sludge removal by vacuum system and/or squeegee. The Contractor shall be responsible for the proper transportation and disposal of all sludge.

3.0 - REMOVAL OF TANK - The Contractor shall be required to load the tank onto a transport vehicle of sufficient size to support the load and block, strap or secure in a manner that will provide firm and secured support during transport. All current transportation laws and regulations shall be adhered to.

4.0 - DISPOSAL OF TANK - The tank shall be disposed of at an approved recycling or metal recovering facility, or by an alternative method that has received prior approval from the Contracting Officer. A Certificate of Disposal must be obtained from the facility for the disposed tank. After being properly decontaminated, fiberglass tanks can be crushed, mixed with backfill, mid returned to the excavation.

5.0 - CERTIFICATE(S) OF DISPOSAL - All certificate(s) of disposal shall be forwarded to the Contracting Officer and the DIS-ENRD within 15 working days upon completion of the tank operation.

6.0 - TANK CLOSURE REPORT - The Contractor shall provide the DIS-ENRD with a completed tank removal report (a blank report may be obtained from the DIS-ENRD). This removal report shall be submitted with the disposal certificate(s) within 5 working days after completion of the site operations.

**DIRECTORATE OF INSTALLATION SUPPORT
ENVIRONMENTAL AND NATURAL RESOURCE DIVISION
BUILDING 1442, SUITE 200
FORT BELVOIR, VIRGINIA 22060-5130**

UNDERGROUND STORAGE TANK PERMIT

BLDG/TANK #: _____ / _____ DATE PERMIT ISSUED: _____
WORK TO BEGIN: _____ PERMIT EXPIRATION DATE: _____
PERMIT TYPE: INSTALLATION REMOVAL REPAIR/UPGRADE
TANK MATERIAL: STEEL FIBERGLASS PLASTIC
OTHER: _____

SINGLE WALLED DOUBLE WALLED

TANK EXTERIOR COATING: _____ NONE _____ TYPE: _____

PIPING MATERIAL: _____ STEEL _____ COPPER _____ PLASTIC
OTHER: _____
_____ PRESSURIZED _____ SUCTION
_____ SINGLE WALLED _____ DOUBLE WALLED

PIPE EXTERIOR COATING: _____

CATHODIC PROTECTION: NONE SACRIFICIAL IMPRESS

TYPE LEAK DETECTION: _____ AUTOMATIC _____ INTERMITTENT MANUAL

OTHER: _____
_____ INTERSTITIAL _____ LINES _____ MANWAY

OVERFILL/SPILL PROTECTION: _____

MATERIAL TO BE STORED IN TANK: _____

The permit holder is required to inform DIS-ENRD at least 24 hours prior to the excavation, installation, removal, and/or upgrading of any underground storage tank (UST) on Fort Belvoir, (703) 806-4007. The DIS-ENRD or its representative must be on site during actual removal and/or final installation of any UST system, and/or the testing of such systems to insure complete compliance to the Commonwealth of Virginia laws and regulations. The permit holder is solely responsible to insure that the Commonwealth of Virginia regulation 9 VAC 25-580-10 et. seq. is adhered to during all operations dealing with underground storage tanks. Failure to comply with local, state, and federal regulations and laws may result in legal action being taken against the Contractor responsible. The permit holder is required to 1) complete the attached Underground Fuel Storage Tank Removal Report Form, 2) provide certificates of disposal and 3) provide a closure report (when applicable), and submit all materials to the DIS-ENRD within 15 working days upon completion of the tank operations.

I acknowledge receipt and agree to comply with the Virginia Regulation 9 VAC 25-580-10 et. seq. and all Fort Belvoir regulations regarding my operations with the above noted UST system. I also agree and understand that when there is a conflict with state/federal regulations and the contract drawings or specifications that the state/federal laws and regulations will govern my actions.

ON BEHALF OF _____

AUTHORIZED SIGNATURE _____ PRINTED NAME _____ DATE _____

PERMIT APPROVED AND ISSUED BY: _____ PERMIT NUMBER: _____

AUTHORIZED SIGNATURE _____ PRINTED NAME _____ DATE _____

**DIRECTORATE OF INSTALLATION SUPPORT
ENVIRONMENTAL AND NATURAL RESOURCE DIVISION
BUILDING 1442, SUITE 200
FORT BELVOIR, VIRGINIA 22060-5130**

UNDERGROUND FUEL STORAGE TANK REMOVAL REPORT FORM

BLDG/TANK #: _____ / _____ PERMIT NUMBER: _____
DATE WORK BEGAN: _____ DATE WORK COMPLETED: _____
MATERIAL STORED IN TANK: _____
TANK SIZE: _____ GALLONS; LENGTH: _____ FEET; DIAMETER: _____ INCHES
TANK MATERIAL: _____
 _____ SINGLE WALLED _____ DOUBLE WALLED
TANK EXTERIOR COATING: _____ NONE TYPE: _____
PIPING MATERIAL: _____ STEEL _____ COPPER _____ PLASTIC
 _____ OTHER: _____
 _____ PRESSURIZED _____ SUCTION
 _____ SINGLE WALLED _____ DOUBLE WALLED
PIPE EXTERIOR COATING: _____
CATHODIC PROTECTION: _____ NONE SACRIFICIAL IMPRESS
TYPE LEAK DETECTION: _____
OVERFILL/SPILL PROTECTION: _____
WAS TANK PUMPED DRY OF CONTENTS PRIOR TO REMOVAL FROM GROUND:
 _____ YES _____ NO _____ NOT REQUIRED
WAS THE TANK DEVAPORIZED: _____ YES NO
WAS THE TANK CLEANED: _____ YES NO METHOD: _____
CONDITION OF TANK: _____

DIAGRAM OF TANK BASIN AND RELATIVE SOIL SAMPLING LOCATIONS (BOTH IN AERIAL AND CROSS-SECTION PROSPECTIVE):

Fort Belvoir, DIS-ENRD
Petroleum Management Program

WAS THERE EVIDENCE OF CONTAMINATION IN THE SURROUNDING SOIL: ☐ YES ☐ NO
DESCRIBE: _____

FINAL DESTINATIONS FOR: (CERTIFICATES OF DISPOSAL FOR EACH ITEM, WHEN DISPOSED
OF OFF SITE, ARE TO BE SUBMITTED WITH THIS REPORT FORM.)

TANK: _____

TANK CONTENTS: _____

CONTAMINATED SOIL: _____

I certify that the above information is true and correct to the best of my knowledge. Under penalty of law, I certify that all local, state, and federal laws and regulations were strictly adhered to for all operations of this tank system. A copy of this report, manifest, all pertinent laboratory reports and other information regarding this tank system shall be submitted to DIS-ENRD.

ON BEHALF OF: _____

AUTHORIZED SIGNATURE

PRINTED NAME

DATE

CHAPTER 3 GEOTECHNICAL

3.0 GEOTECHNICAL

3.1 GENERAL REQUIREMENTS

Contractor is responsible for determining the site specific geotechnical conditions and providing a site specific geotechnical conditions report to be used to design the building foundations, slabs, and paving (where replacing existing paving). The geotechnical report shall include the following as a minimum:

3.1.1 Description of the subsurface exploration procedures and equipment used.

3.1.2 Classification of soil

3.1.3 Bearing capacity of soil/foundation

3.1.4 Settlement Potential

3.1.5 Compaction Requirements

3.1.6 Groundwater Characteristics

3.1.7 Infiltration and permeability

3.1.8 Surface and subsurface drainage

3.1.9 Soil resistivity

3.1.10 Field and final boring logs

3.1.11 As-built boring location plan

3.1.12 Soil laboratory testing data, including tabulated summary table of soil parameter results.

3.1.13 Tabulated survey data of boring locations

3.1.14 All supplemental calculations related to estimating bearing capacity, settlement, etc.

3.2 GEOTECHNICAL DESIGN CERTIFICATION

The contractor shall certify in writing that the design of the project has been developed consistent with the site specific geotechnical conditions. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted not later than the 60% design submission. If revisions are made to the 60% design submission, a new certification shall be provided with the final design submission.

3.3 PROJECT LOCATION AND INTENT OF GEOTECHNICAL DATA/RECOMMENDATIONS

3.3.1 Project Location

The K-9 Kennel project site is located at Ft. Belvoir, VA, on the west side of Pratt Road adjacent to the existing K-9 Kennel facility and across from the existing Electronic Maintenance Shop located on 16th Street and Pratt Road.

3.3.2 Intent of Geotechnical Information

The geotechnical data and recommendations included in this report are preliminary. They are intended to provide the Request for Proposal (RFP) bidders with sufficient information to identify the general subsurface conditions in the vicinity of the site. The selected design/build firm's geotechnical engineer shall perform a site specific geotechnical exploration and testing program to accurately characterize the site and shall perform the final design for all geotechnical features of work.

3.4 SUBSURFACE EXPLORATION

3.4.1 Regional Geology

The project site lies within a geologic area known as the Atlantic Coastal Plain Physiographic Province. The Coastal Plain is a wedge of sedimentary deposits which gradually thickens to the southeast and overlies the crystalline bedrock of the Piedmont Physiographic Province. The soils generally consist of stratified deposits of silt, sand and clay with occasional lenses of gravel.

3.4.2 Exploration Data

No new subsurface exploration was performed for this project. Drill holes were performed at the adjacent Electronic Maintenance Shop located on 16th Street and Pratt Road, and approximately 200 feet from this project site. Subsurface Exploration Notes and a Drill Hole Location Plan are included as Attachment A and B to this Geotechnical Chapter 3.

3.5 SOIL COMPACTION

Soil compaction shall be achieved by equipment approved by a professional geotechnical engineer. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the compaction specified with the equipment used. Compact each layer to not less than the percentage of maximum density specified in the table below, determine in accordance with ASTM D 1557 Method C.

SOIL COMPACTION

Subgrade Preparation, Fills, Embankments, and Backfills	Compaction Requirements (Percentage of Maximum Density)
--	--

SOIL COMPACTION

Subgrade Preparation, Fills, Embankments, and Backfills	Compaction Requirements (Percentage of Maximum Density)
Under Structures, Building Slabs, Steps, around footings and in trenches	95
Under Streets, Paved Areas	95
Under Sidewalks	90
Under Grassed Areas	90

3.5.1 Recommended Modifications

The requirements shall be verified or modifications recommended by the consulting geotechnical engineer in the report wherever engineering, soils, or climatic factors indicate the necessity. Any modification to the stated compaction requirements shall require the approval of the Contracting Officer.

3.6 CAPILLARY WATER BARRIER

A capillary water barrier is required for all interior slabs on grade, including storage rooms. As a minimum, the capillary water barrier shall conform to AASHTO M 57, course aggregate.

3.7 DRAINAGE AND WATER CONTROL

Proper drainage and collection provisions should be employed to minimize exposure of the site soils to moisture and to prevent surface runoff from entering excavations. Dewatering should be used to remove any surface runoff or groundwater which enters the excavations.


3.8 FOUNDATION DESIGN

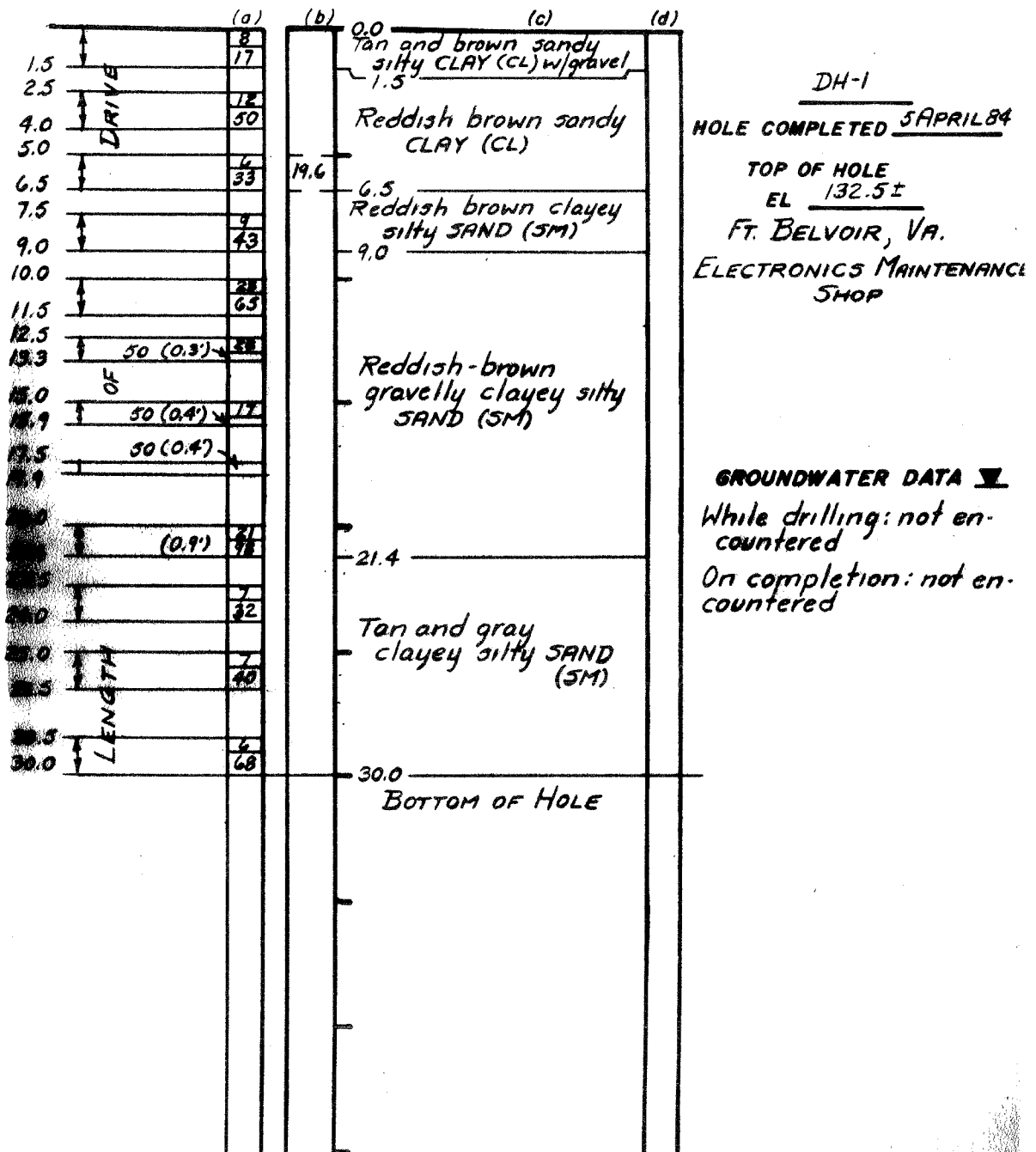
Shallow foundations for this facility are anticipated. The site specific geotechnical investigation and foundation design shall be performed by the selected design/build firm's geotechnical engineer in accordance with standard geotechnical practice. The foundation design shall consider shear failure, settlement criteria, fill induced settlements and all other relevant factors. Substantiating calculations shall be included with the project design submissions. Foundations must bear below frost depth into virgin soils beneath the existing, on-site, fill materials.

SUBSURFACE EXPLORATION NOTES

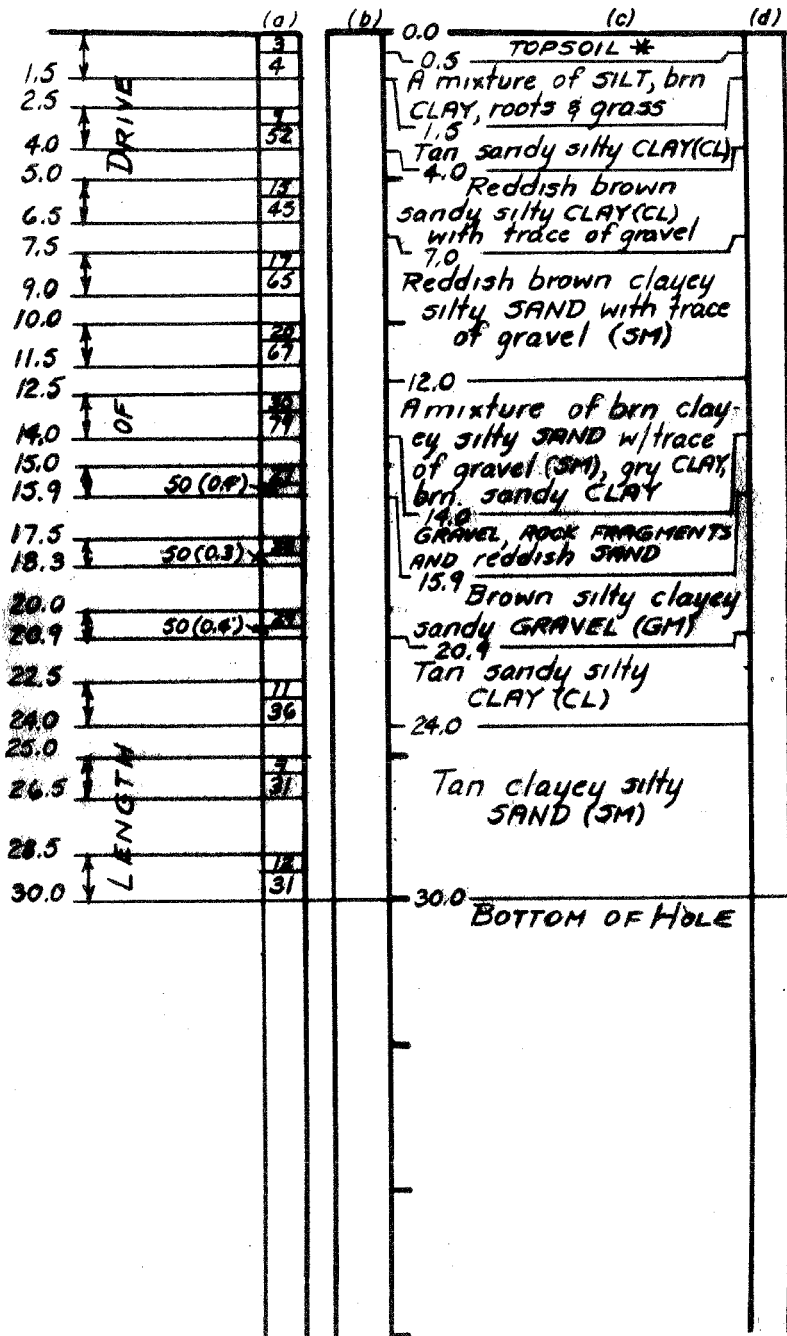
Site Location Ft. Belvoir - Electronics Maintenance Shop

1. Exploration was performed during April 1984.
2. Drill holes (DH) were accomplished by standard penetration test procedure using a 1-3/8" I.D. x 2'-8" long split spoon. Sample spoons were advanced by a 140# hammer falling 30". These holes were power augered between samples. The first blow count in a given length of drive is for 0.5'; the second blow count is for 1.0', unless otherwise indicated.

L.O.D. - Length of drive.
3. Blow counts required to advance spoon are shown in column (a).
4. The natural water contents in % of dry weight of those samples tested are shown in column (b).
5. Depths below ground and soil descriptions are shown in column (c).
6. Soil descriptions are laboratory classifications based on the Unified Soil Classification System (MIL-STD-619B), except those indicated thus *, which are field inspectors' classifications.
7. Groundwater depths are indicated on the logs as  and are shown in column (d). Pertinent data for these readings are shown in the right hand margin under Groundwater Data. The actual groundwater level may vary depending upon seasons and amount of rainfall.
8. Elevations shown on the boring logs are ground surface elevations at the time of exploration. They were determined by estimation from contour maps, designated (±).
9. Test pits are denoted TP.
10. For locations of subsurface explorations, see



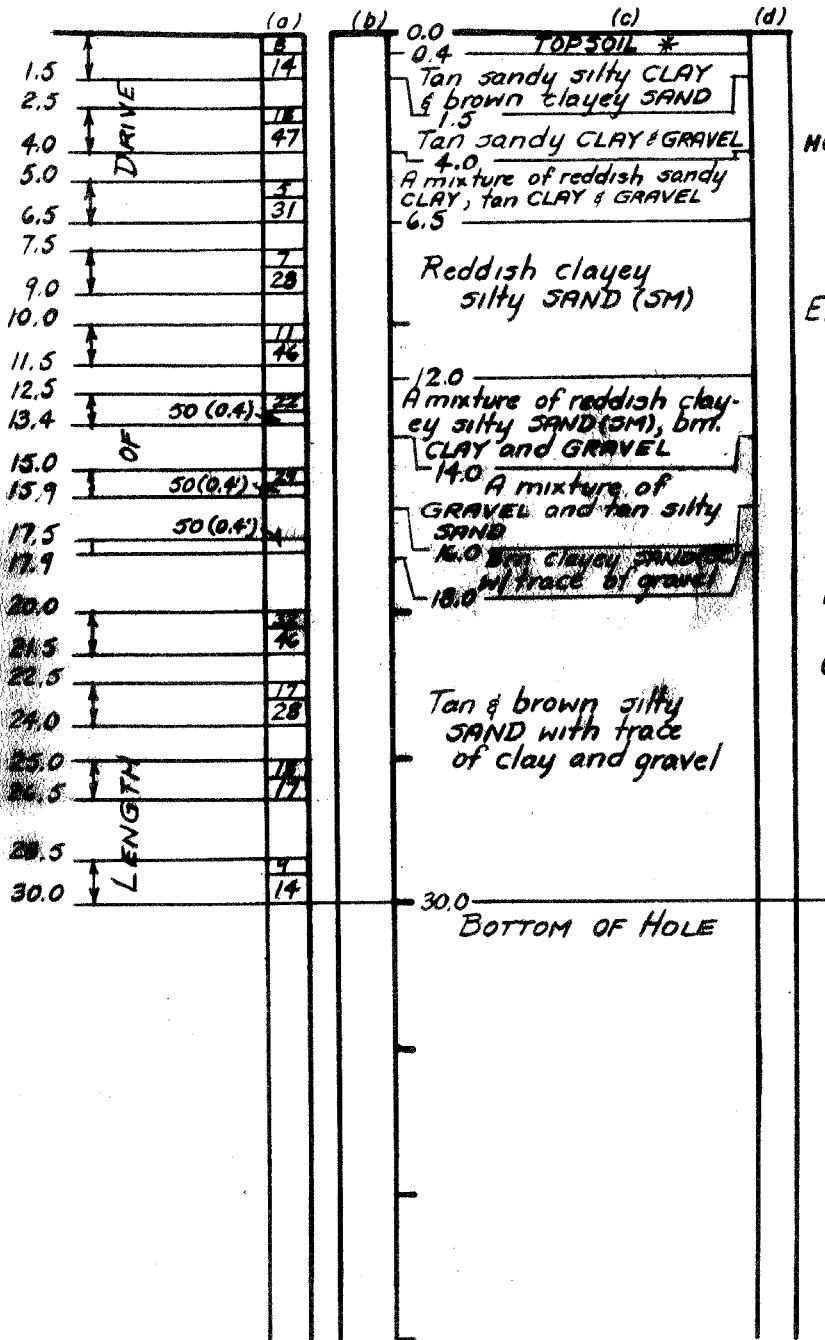
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rev 17 May 83



DH-2
HOLE COMPLETED 5 APR 84

TOP OF HOLE
EL 131.0±
FT. BELVOIR, VA.
ELECTRONIC MAINTENANCE
SHOP

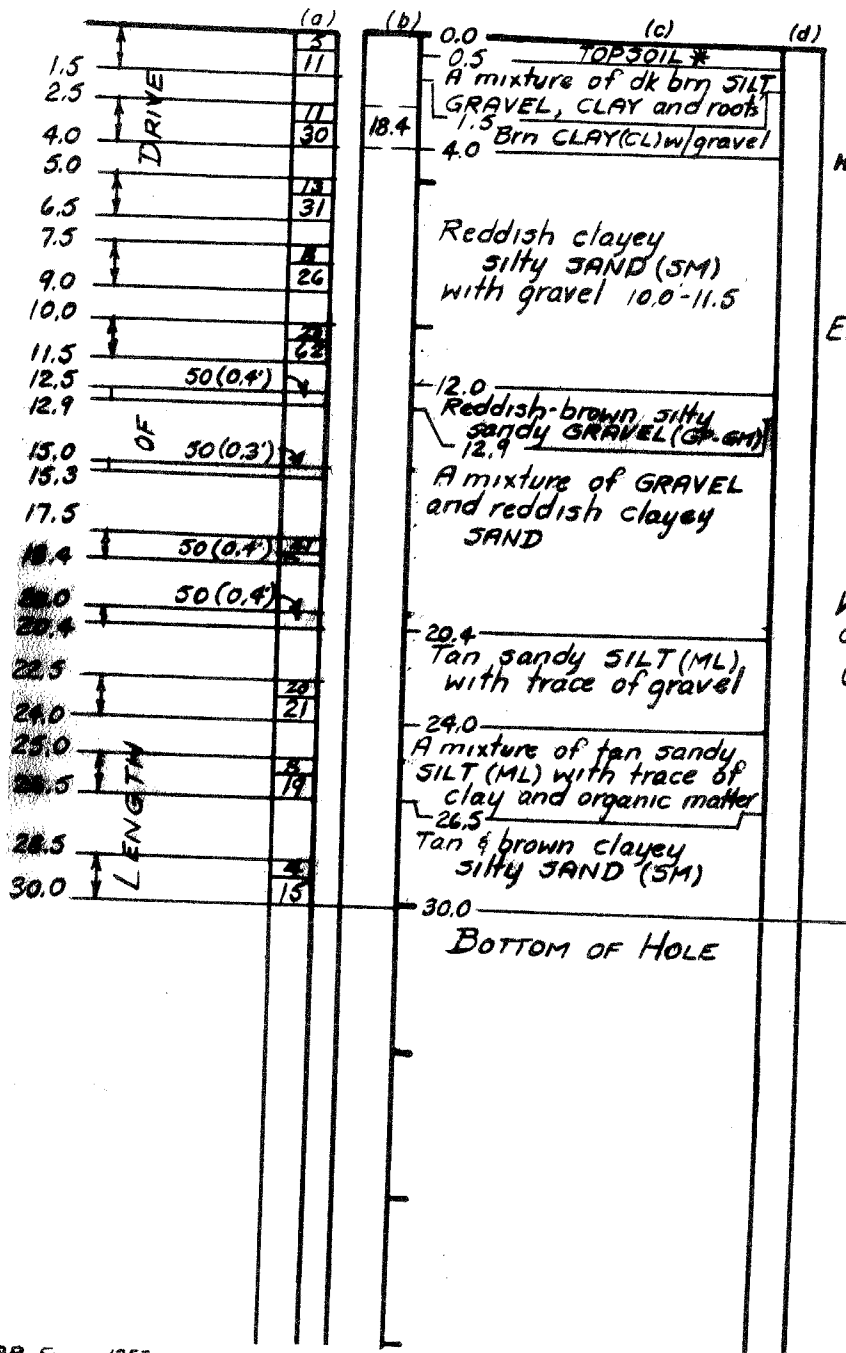
GROUNDWATER DATA II
While drilling: not encountered
On completion: not encountered



DH-3
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ELECTRONIC MAINTENANCE
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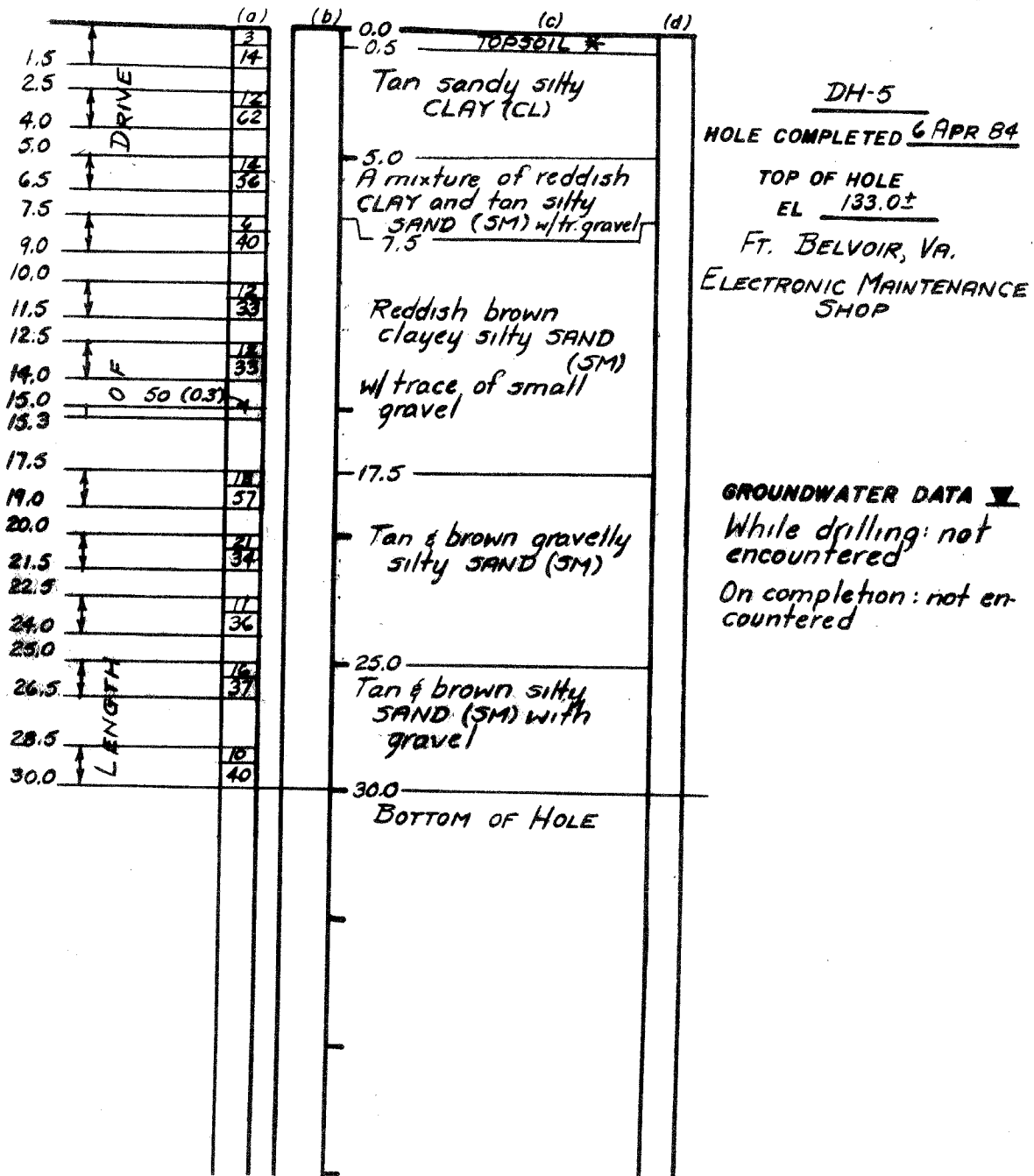
GROUNDWATER DATA

While drilling: not encountered
On completion: not encountered

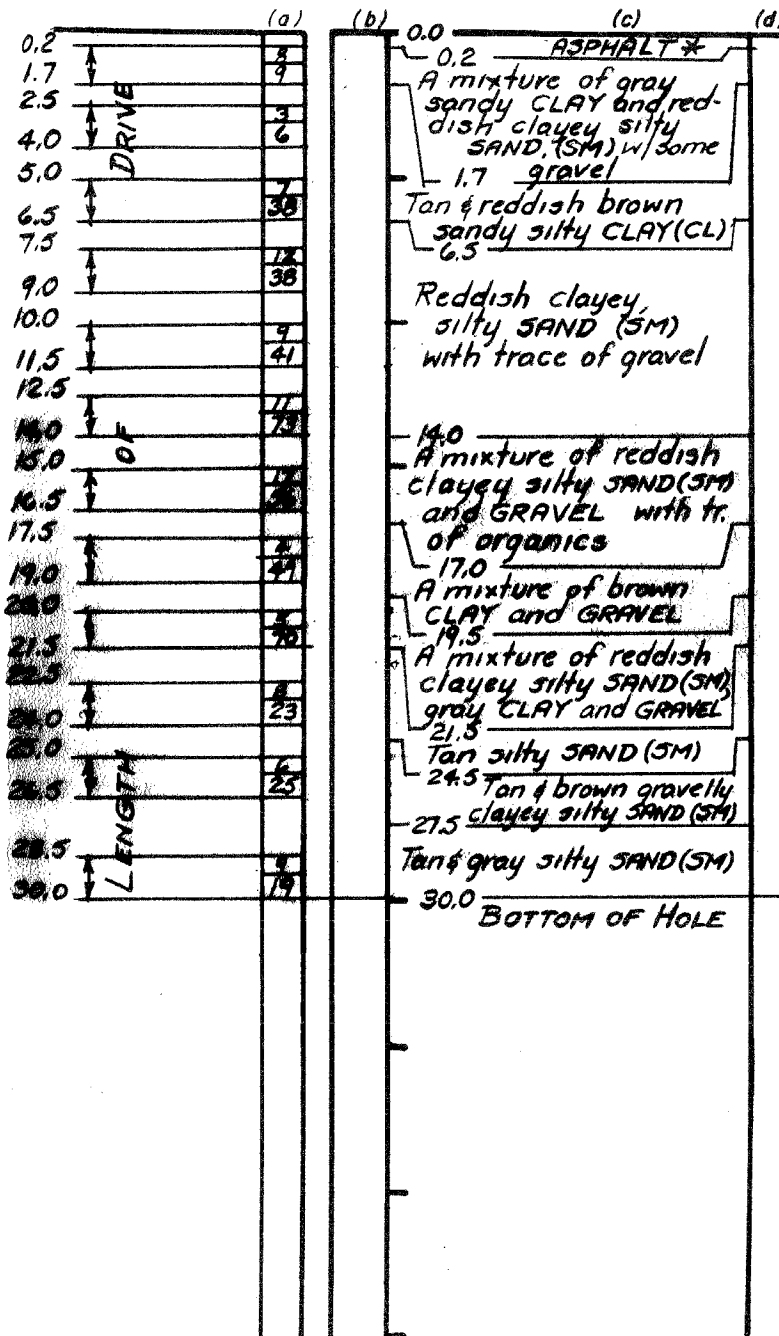


DH-4
HOLE COMPLETED 9 APR 84
TOP OF HOLE
EL 132.5 ±
FT. BELVOIR, VA.
ELECTRONIC MAINTENANCE
SHOP

GROUNDWATER DATA ☒
While drilling: not encountered
On completion: not encountered



NAB Form 1357
Rev 17 May 83



DH-6
HOLE COMPLETED 4 APR 84

TOP OF HOLE
EL 133.5 ±

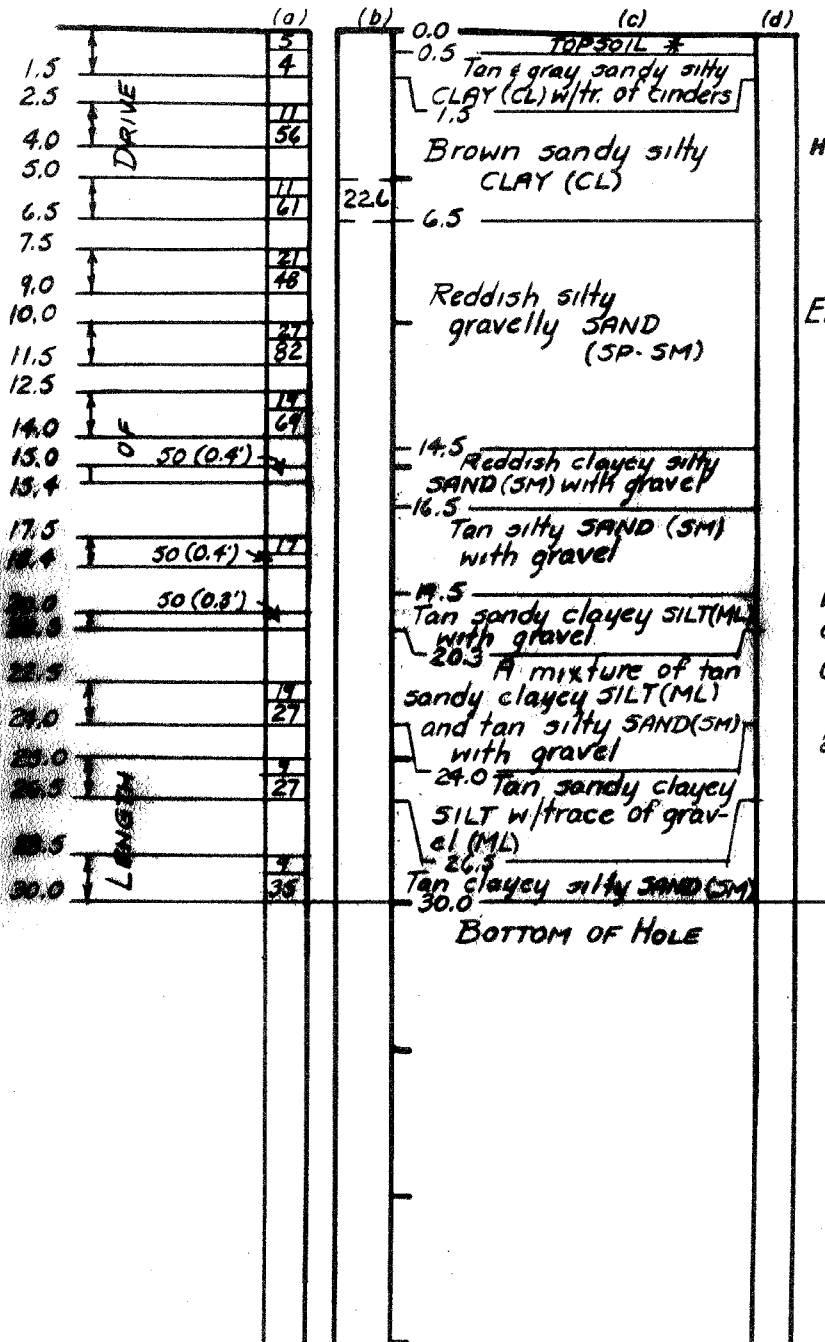
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ELECTRONICS MAINTENANCE
SHOP

GROUNDWATER DATA

While drilling: not encountered

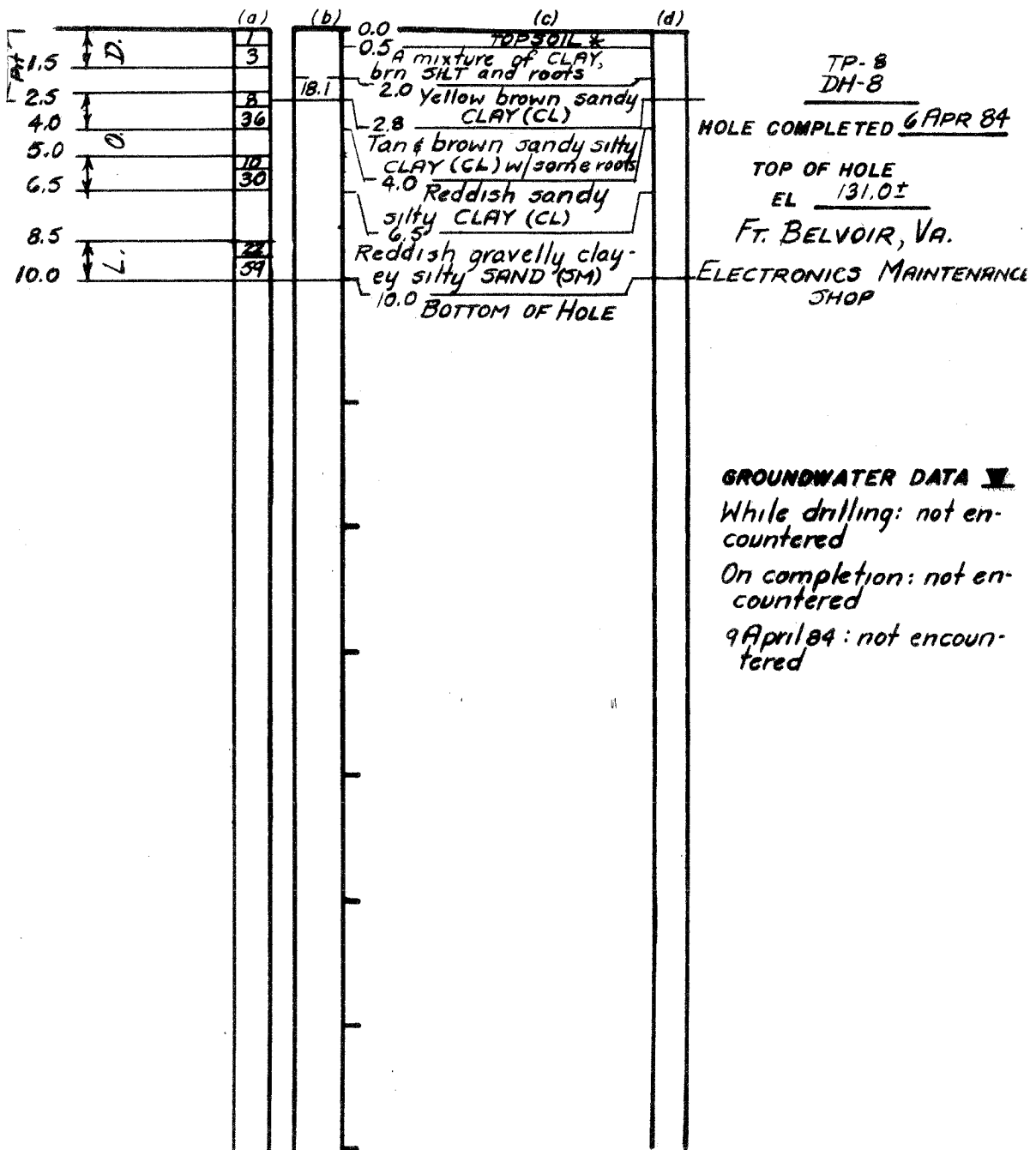
On completion: not encountered

24 hrs after completion: not encountered



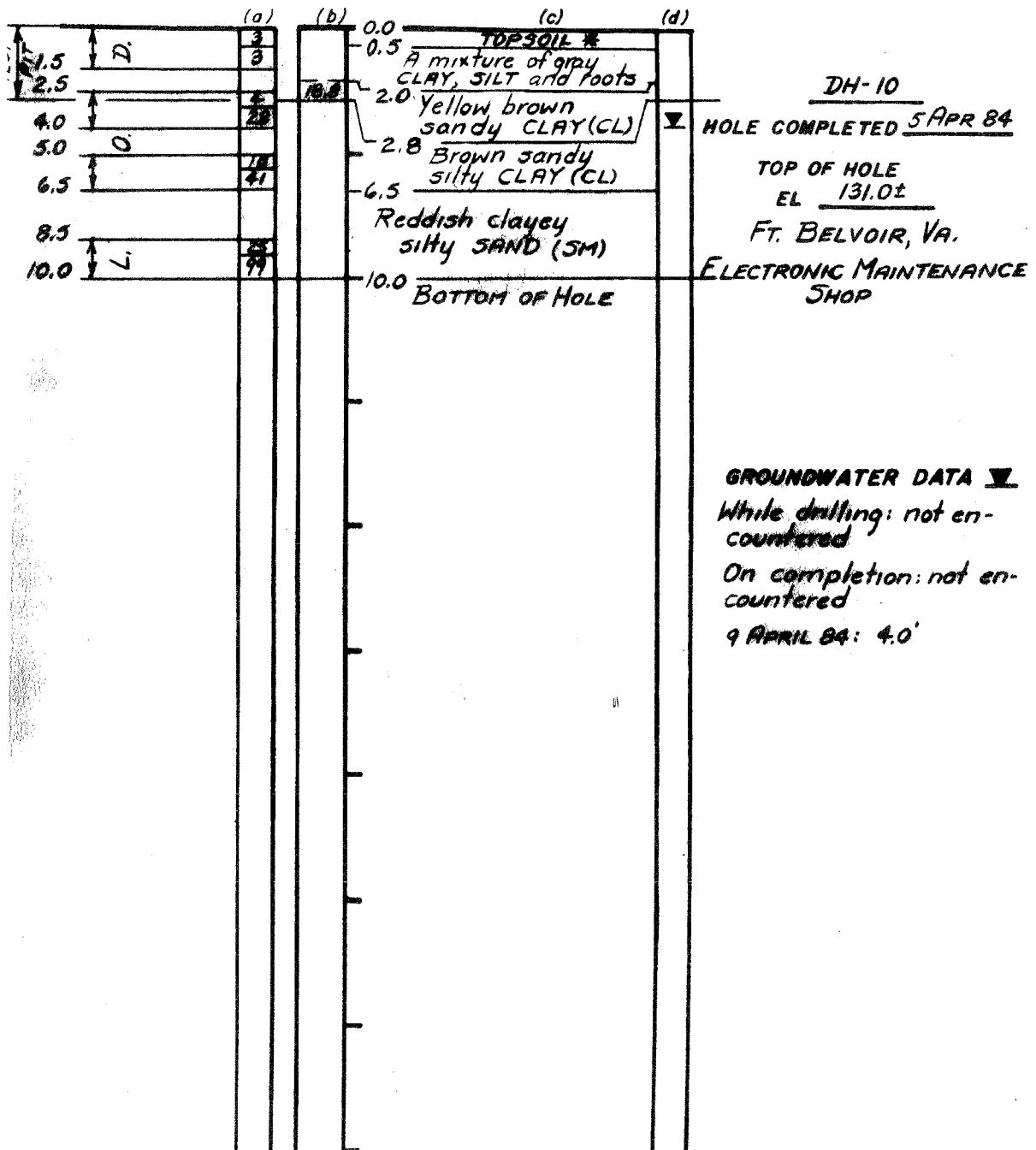
DH-7
HOLE COMPLETED 4 APR 84
TOP OF HOLE
EL 131.5±
FT. BELVOIR, VA.
ELECTRONICS MAINTENANCE
SHOP

GROUNDWATER DATA
While drilling: not en-
countered
On completion: not en-
countered
24 hours after comple-
tion: not encountered

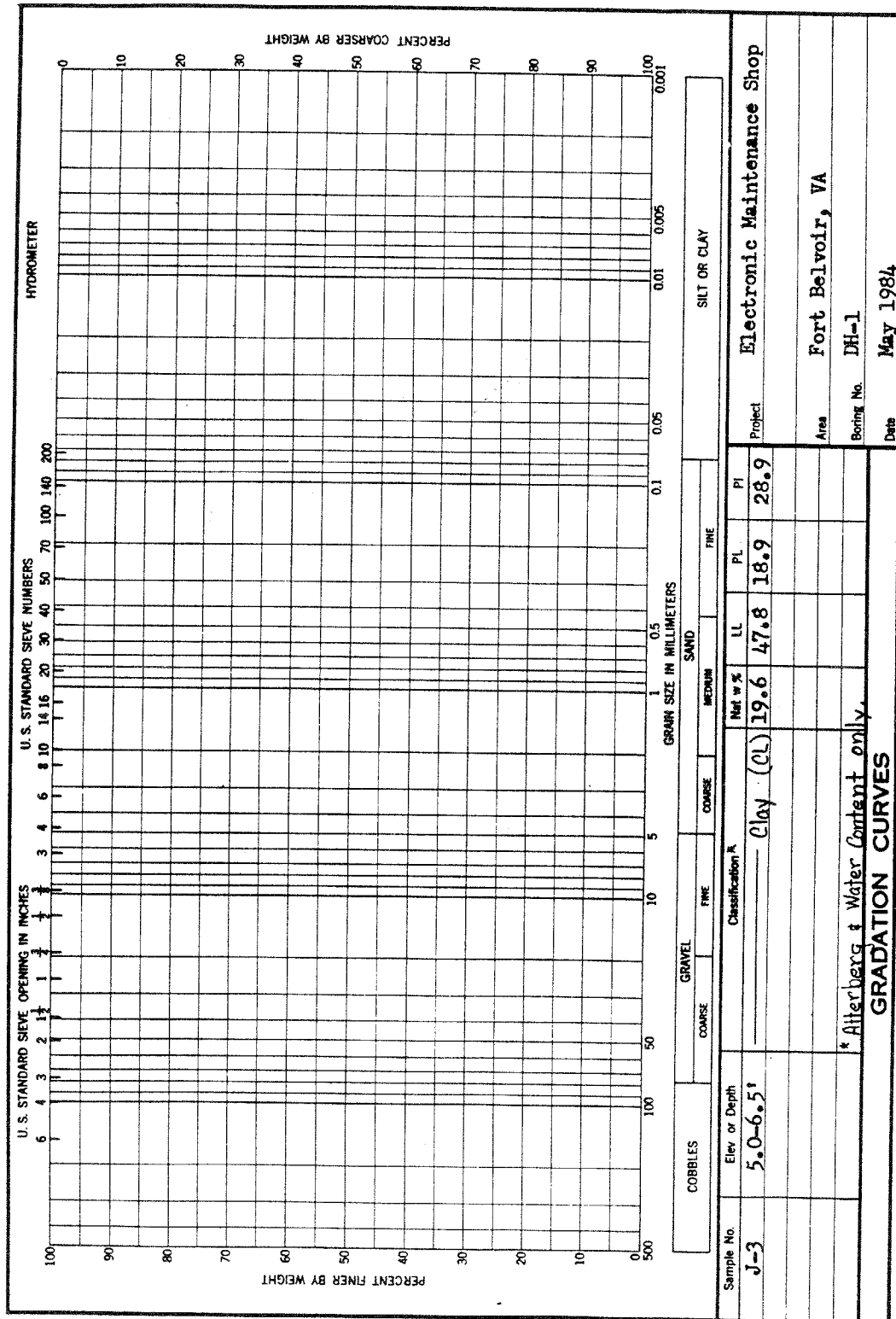


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Rev 17 May 83

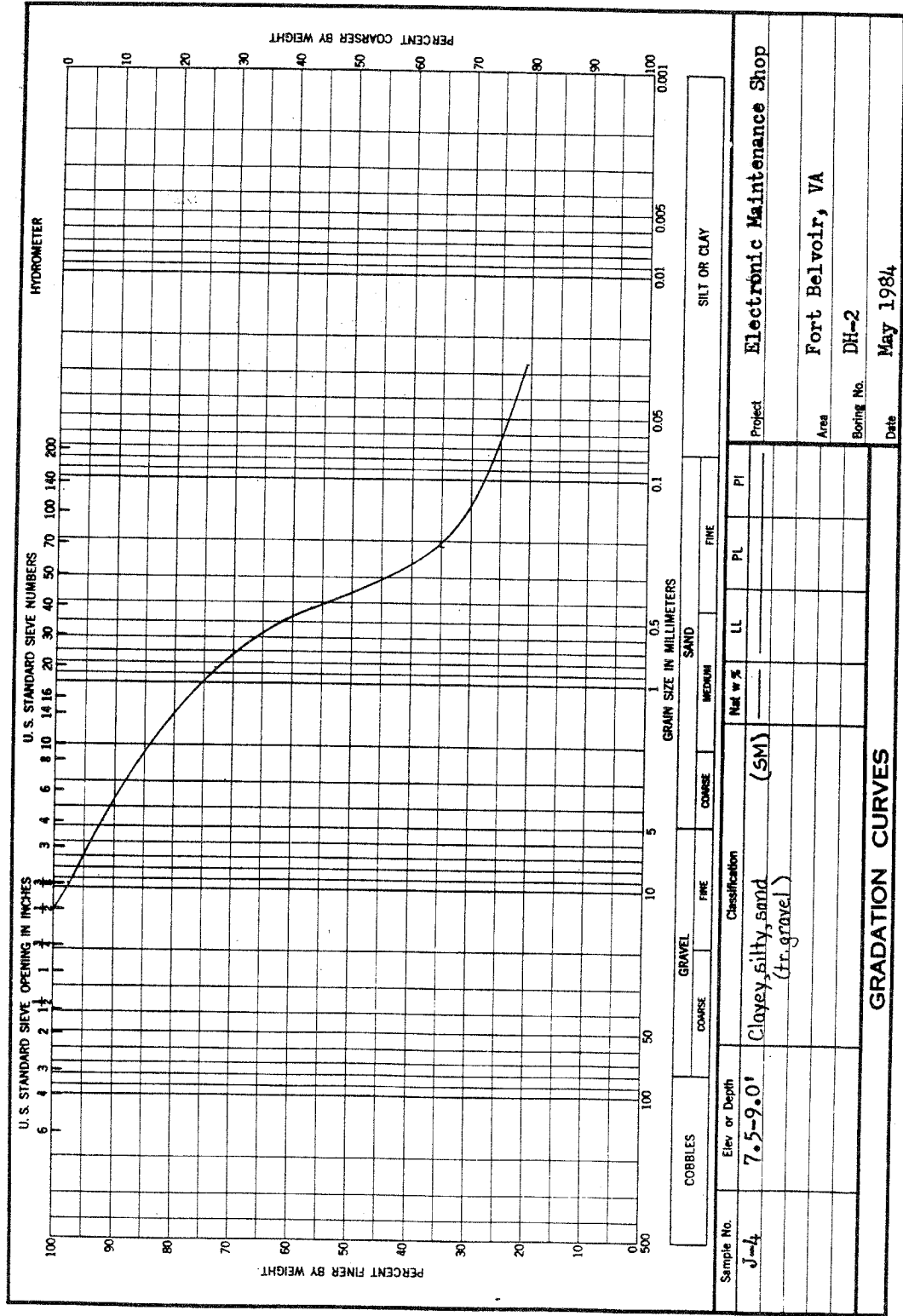


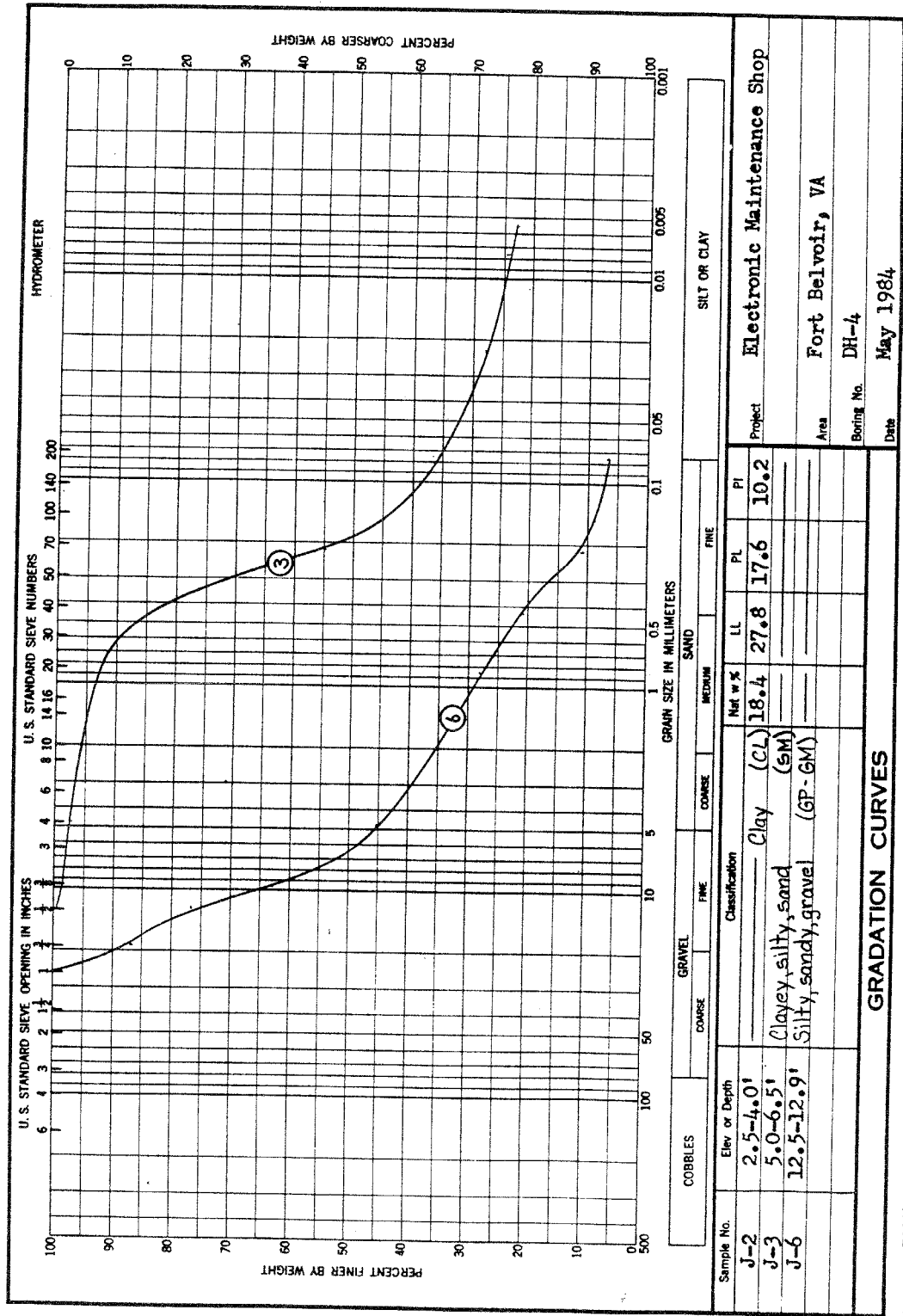


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Rev 17 May 83

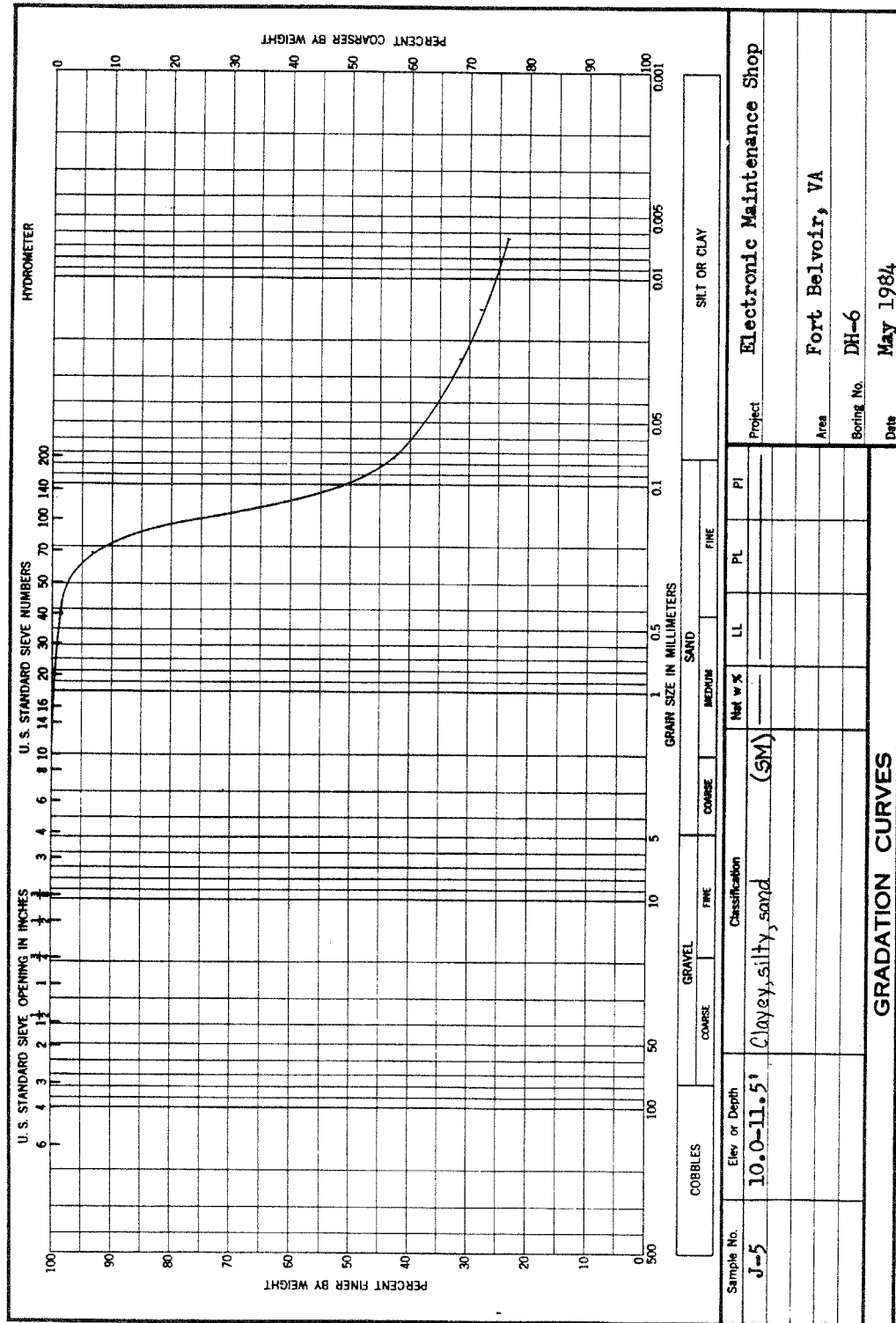


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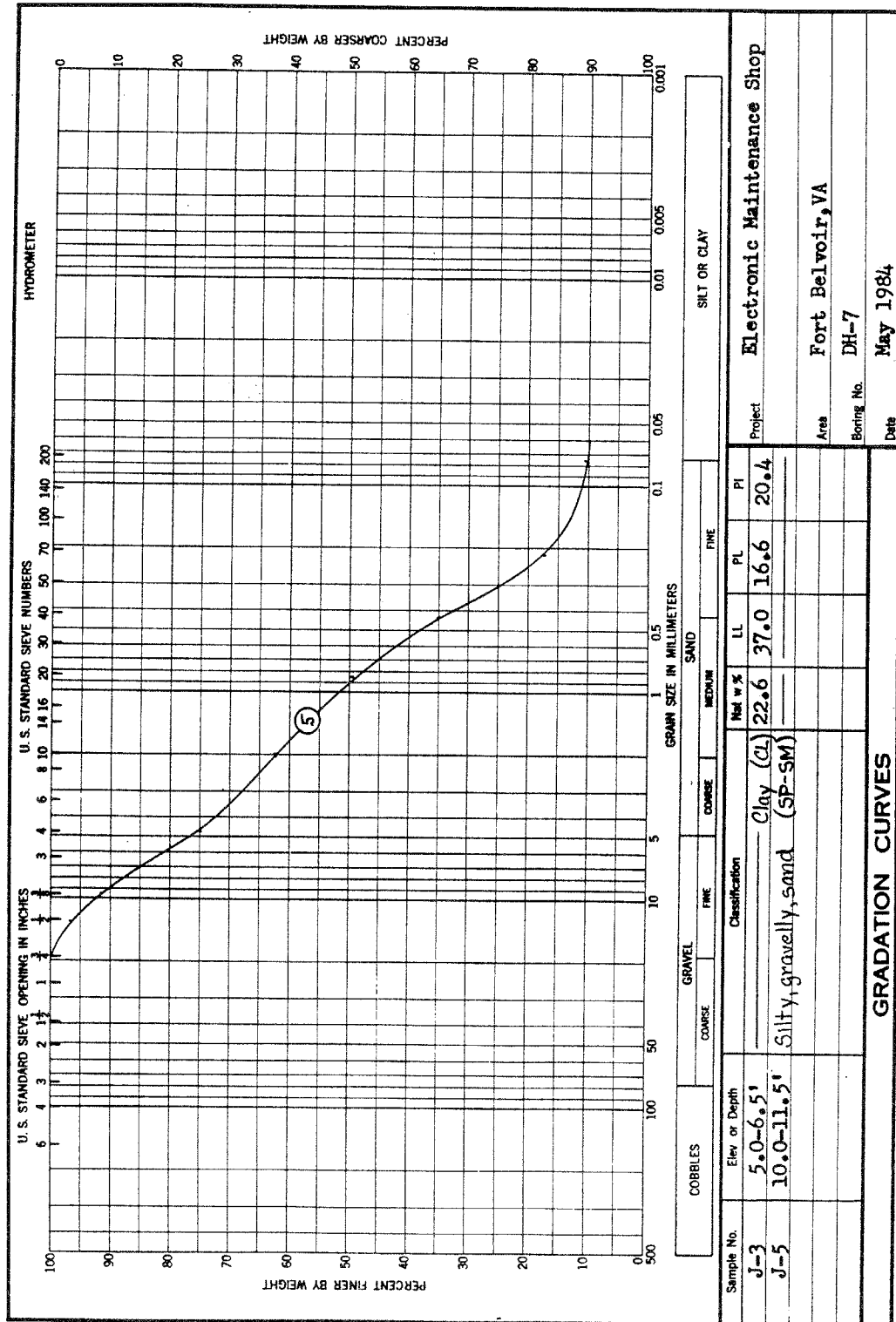




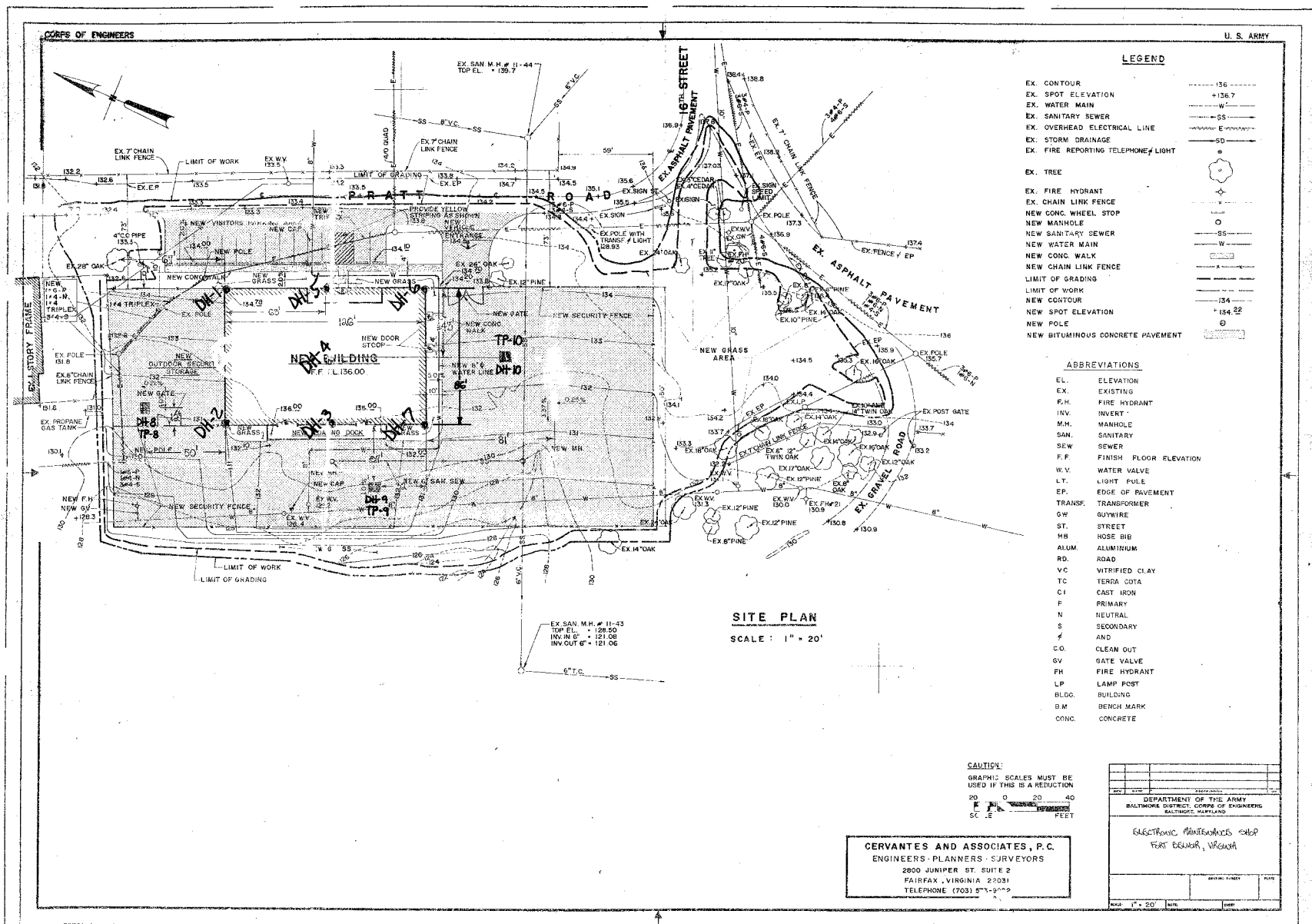
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CHAPTER 4

ARCHITECTURAL

4.0 ARCHITECTURAL

4.1 GENERAL

4.1.1 Design and Construction of the K-9 Kennel Facility shall be based on the information contained in this RFP and the attached diagram showing major adjacencies and organizational structure. The diagram is attached at the end of this section as Attachment 1.

4.1.2 Verification of information gathered during Site visits and the pre-design conference meeting with the users and Directorate of Installation Support (DIS) personnel were used to develop adjacencies and functional requirements.

4.1.3 Architectural features of this facility shall be designed in accordance with the Fort Belvoir Installation Design Guide. The exterior shall be designed to incorporate the style, color and materials of other recent facilities in the area. All materials will be chosen for durability and low maintenance. Materials and finishes noted in this RFP should be considered as minimum requirements. Improved finishes or betterments are encouraged.

4.1.4 This facility shall be constructed in accordance with Military Handbook 1008C and the Unified Facilities Criteria (UFC) UFC 1-200-01, Design: General Building Requirements. MIL HDBK 1008C currently requires new buildings to be either Type I or Type II construction as determined by the Uniform Building Code (UBC). Where there is a case of conflicting requirements the most stringent requirement shall apply. Military Handbook 1008C references: a) applicable portions of the Uniform Building Code for the following: type of construction, fire resistance requirements, allowable floor area, building height limitations, and building separation distance requirements; and b) building construction related to egress and safety to life shall comply with NFPA 101. Type of occupancy shall be in accordance with UBC and NFPA. Fire Resistant plywood is not permitted as a roof sheathing material. Finishes shall be Class A or B except that smoke spread rating cannot exceed 100 for Class B.

4.1.5 Antiterrorism/Force Protection: The facility shall be designed in accordance with 1999 Interim Department of Defense Antiterrorism/Force Protection Construction Standards. A copy of this document will be made available to the Contractor.

4.1.5.1 Antiterrorism/Force Protection for this facility shall be designed for the minimum requirements set forth in the Interim Department of Defense Antiterrorism/Force Protection Construction Standards and shall include but not be limited to controlling access to roofs, laminated glass (use a minimum of 1/4" annealed laminated glass for the inner pane, exterior doors shall use a minimum 1/4" annealed laminated glass, and attaching interior ceiling mounted fixtures to the supporting structural system which includes suspended ceilings, light fixtures, and mechanical and electrical ducting and pipes, etc. See the Interim Department of Defense Antiterrorism/Force Protection Construction Standards, December 16, 1999 for additional requirements.

4.1.6 Adjacencies and Organizational Structure: The following is a discussion of the organizational structure and adjacencies of the K-9 Kennel Facility.

4.1.6.1 The K-9 Kennel Facility shall be designed to incorporate all the requirements of this RFP and with the Kennel Support and Kennel Portions physically connected (as opposed to what is shown in DA PAM 190-12, as separated facilities).

4.1.6.2 The K-9 Kennel organization consist of a staff of 14 people tasked with providing training and shelter for 13 canines in support of narcotics and explosive missions on the installation, within the National Capitol Region, and to provide support of missions throughout the United States.

4.1.6.3 The kitchen shall be directly adjacent to kennels. The drug room shall not be located on an exterior wall. The kennel storage room and break areas shall be located adjacent to the kennel runs. The food storage room shall be located adjacent to the kitchen area.

4.1.6.4 See Table I below for a detailed listing of all rooms, spaces, areas, and equipment and Attachment 1 for "Diagram Showing Major Adjacencies and Organizational Structure".

4.2 REFERENCES:

Design shall meet the latest edition of the following criteria unless otherwise noted herein:

DA Pam 190-12, "Military Working Dog Program".

MIL-HDBK-1008C, "Fire Protection for Facilities, Engineering, Design, and Construction" http://www.efdlant.navfac.navy.mil/lantops_15/documents/MH/1008C.PDF.

UFC 1-200-01, Design: General Building Requirements, Dated 31 July 2002, <http://www.ecodes.biz/dod.cfm>.

EC 1110-1-94, Dated 31 July 2001, Modifying MIL-HDBK-1008C, <http://www.usace.army.mil/inet/usace-docs/eng-circulars/ec-all.html>.

MIL-HDBK-1190, "Facility Planning and Design Guide", http://www.lantdiv.navfac.navy.mil/servlet/page?_pageid=6,14&_dad=lantdiv&_schema=LANTDIV.

Fort Belvoir Installation Design Guide, Attached.

Uniform Federal Accessibility Standards (UFAS), 49 CFR 31528.

Americans With Disabilities Act (ADA), Public Law 101-336.

Americans with Disabilities Act Accessibility Guidelines (ADAAG), 36 CFR Part 1191.

Uniform Building Code (UBC).

NFPA-101, Life Safety Code.

Antiterrorism/Force Protection Standards are available for viewing from the Baltimore District Office or the Fort Belvoir Directorate of Installation Support.

1. Department of Defense Antiterrorism/Force Protection Construction Standards (with Army Supplemental Guidance) Interim Standards, 16 Dec. 99.
2. Army TM 5-853-1, Security Engineering Project Development, May 1994.
3. Army TM 5-853-2, Security Engineering Concept Design, May 1994.
4. Army TM 5-853-3, Security Engineering Final Design, May 1994.
5. Army TM 5-853-4, Security Engineering Electronic Security Systems, May 1994.

Army Technical Letter 1110-3-491, Sustainable Design for Military Facilities, <http://www.usace.army.mil/inet/usace-docs/eng-tech-trs/etl1110-3-91/toc.htm>.

Sustainable Project Rating Tool for military facilities, available at <http://www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl1110-3-491/a-c.pdf>

Army Regulations -
http://www.army.mil/usapa/epubs/190_Series_Collection_1.html

AR 190-12 dated 30 September 93, Army Regulation, Military Working Dogs.

AR 190-51 dated 30 September 93, Army Regulation, Security OF Unclassified Army Property (Sensitive And Non-sensitive).

Army Technical Instructions TI 809-04, Seismic Design for Buildings,
<http://www.hnd.usace.army.mil/techinfo/ti.htm>.

TM 5-807-10, Signage, <http://www.usace.army.mil/inet/usace-docs/armytm/tm5-807-10/>

4.3 BUILDING AREAS

4.3.1.1 Gross Area: The gross floor area of the K-9 Kennel Facility shall equal but not exceed 3,616 square feet. The gross area is the floor area measured from the outer surfaces of the exterior walls.

4.3.1.2 Half Space: One-half of the area will be included in the gross area for covered areas such as canopies, passageways, breezeways, or walks.

4.3.1.3 Excluded Space: Attic areas where clear height does not average less than 6'-11"; crawl spaces; roof overhangs and soffit for weather protection; uncovered ramps; uncovered stoops; and utility tunnels and raceways will be excluded from the gross area.

4.3.2 Net Floor Areas: Net floor area is that space within the interior faces of exterior walls and/or interior walls. The following required rooms/spaces are shown in Table I with approximate areas in square feet (SF). Actual amount on space required for each area will be determined by the Design-Build Contractor to accommodate personnel, equipment and furniture requirements and space clearances for equipment service. Mechanical and Electrical Rooms shall be sized to accommodate efficient layout of mechanical and electrical equipment.

K-9 Kennel
Fort Belvoir, Virginia

Areas and Spaces	Gross Area (SF)	
	Private	Open
Kennel Support Building		
Corridor	AR (485)	
Kennel Master Office	120	
NCO Office	80	
Multipurpose Room		600
Food Preparation Room	100	
Food Storage Room	20	
Tack Room	170	
Grooming Room	50	
Isolation Room	50	
Toilet Room(s) with Shower	150	
Janitor Supply Closet	50	
Drug Room	150	
Vending Area	40	
Mechanical Room	AR (237)	
Electrical Room	AR (50)	
Sub Total	1752	600
Kennel		
Kennel Runs (13 @ 88sf. Ea.)	1144	
Kennel Storage Room	120	
Break Area(3), Exterior Fenced-in Areas (300)	0	
Sub Total	1264	600
Total (Private)	3016	
Total (Open)		600
Grand Total		3616
(AR)	(-) 786	2830
Corridors, Mechanical Room, Electrical Room		W/O AR

Abbreviation: AR - As Required

Table I - Room/Space/Equipment Tabulation

4.3.3 Outdoor equipment is to be located on the ground. Equipment located on the ground shall be minimum 30 feet from the building wall. Equipment shall be placed on concrete pads and surrounded by a fence with a lockable gate in accordance with the Fort Belvoir Installation Design Guide and the Interim Antiterrorism/Force Protection requirements. Noise from outdoor equipment must be considered when locating equipment. Airflow to and from outdoor units must not be obstructed.

4.4 INTERIOR BUILDING SPACES

4.4.1 The following building spaces are required. Unless otherwise indicated, all furniture/furnishings referred in this section are to be part

of the CID package and purchased and installed by the government. Contractor purchased and installed furniture/furnishings shall also be included in the CID package as Option no. 2. Special requirements for these areas are as follows:

4.4.2 Kennel Support Area

4.4.2.1 Corridors: Corridors shall be minimum 6'-0" net clear width and shall be constructed, as a minimum, with glazed concrete masonry unit wainscot, 4'-0" minimum in height.

4.4.2.2 Private Offices: Private offices shall include the Kennel Masters Office and the NCO Office. Each office shall accommodate a desk, credenza, desk chair, 2 side chairs, and one file cabinet as well as a storage locker for A & B Bags as described below in Multipurpose Room.

4.4.2.3 Multipurpose Room: Shall include workstations, storage room, briefing/training area, and lounge.

4.4.2.3.1 Four workstations with chairs shall be provided and shall include desktop (min. 30" deep x 60" wide, grommets in desktop for wiring penetration, integral divider and surround partitions, overhead enclosed shelf with light below, and lockable wheeled cabinet under desk to accommodate two pencil drawers and one file drawer. Workstations shall have an integral chase for electrical/communications wiring and electrical outlets in base of partitions. Room shall accommodate four standard size file cabinets.

4.4.2.3.2 Storage Room: A storage room shall be provided to house storage lockers and shelves. Room shall have 2 shelves. Shelves shall be wire vinyl coated 24" deep @ 30" O.C. horizontally, rated at 400 PSI capacity, ten feet long, mounted at 30 inches and 60 inches above finish floor. Room shall also include fourteen lockable, vented lockers for A & B Bags. A Bags are approximately 18 inch wide x 18 inch deep x 18 inch high back packs and B Bags are approximately 22 inches in diameter by 30 inches high. Storage lockers shall be 24" deep x 24" wide x 7'-0" high and include a base approximately 6 inches off the floor, one interior solid shelf at 36 inches above the floor at the middle of the unit and one shelf one foot from the top, all rated at 400 PSI capacity. Shelves and vented lockers shall be provided under this contract.

4.4.2.3.3 Briefing/Training Area: The multipurpose room shall accommodate 16 people for briefings and training.

4.4.2.3.4 Lounge Area: The lounge area shall include a sofa and two side chairs, TV/VCR/CD viewing cabinet, and coffee table. Lounge furniture or equipment will not be a part of this RFP.

4.4.2.4 Food Preparation Area: A kitchen shall be provided containing stainless steel base and wall cabinets with stainless steel counter top, double bowl (each bowl being minimum 18-inch wide by 10-inch deep) stainless steel sink, stainless steel electric range with exhaust hood, stainless steel refrigerator, stainless steel ice machine (Flake Type, 400 pound capacity), garbage disposal, and stainless steel microwave. Approximately ten linear

feet of continuous cabinet top counter space shall be provided for food preparation. Sink shall be under counter mounted.

4.4.2.5 Food Storage Room: A food storage room shall be provided for storage of bags of dry dog food. Room shall be either in or adjacent to food preparation room and capable of storing a 30-day supply of dog food. The Food Storage Room shall be rodent proof. Bags of dog food will be stored on 4 foot x 4 foot x 6 inch high pallet. The pallet shall be sectional, 2 feet x 2 feet sections, constructed of stainless steel and shall be removable for cleaning. Door to storage shall be minimum 3 feet wide. The pallet shall be provided as part of this RFP.

4.4.2.6 Tack Room: A tack room shall be provided for the storage of canine gear (leashes, chains, collars), attack suits, and training equipment. Tack room shall be constructed with sealed concrete floors and glazed concrete masonry unit walls. Storage hooks shall be provided complete with 30 stainless steel hooks in two rows of 15, one mounted 36" above finish floor and the other mounted 60 inches above finished floor mounted on a 1-inch thick, 6-inch high solid plastic board. Hooks shall be mounted on 8-inch centers. Three Storage racks shall also be provided in the Tack Room. Storage racks shall be commercial kitchen type stainless steel (24 inches deep x 48 inches wide x 60 inches high) with lockable wheels, and 5 shelves including top and bottom shelves.

4.4.2.7 Grooming Room: A grooming room shall be provided to accommodate a stainless steel sink. Sink shall be commercial kitchen type, 5 feet wide x 30-inch deep x 3'-6" high with an integral 18-inch backsplash where the faucet, with commercial spray nozzle, will be mounted. Bottom of the sink bowl shall be approximately 18 inches above finished floor and shall be 18 inches deep and approximately 5 feet wide, standing on legs. A wall-mounted shelf (5'-0" wide by 12" deep) shall be provided at 5'-0" above finish floor. The shelf shall not be located over the sink. The sink and shelf shall be provided under this RFP.

4.4.2.8 Isolation Room: The isolation room shall have sealed concrete floors with glazed concrete masonry unit walls with a 3'-0" stainless steel door.

4.4.2.9 Women's and Men's Toilet Rooms: Toilet rooms shall be provided with floor drains and toilet accessories as indicated below. One men's and one woman's toilet room shall be provided each with a toilet, lavatory, and shower. Shower rooms can be separate rooms. The toilet rooms shall be handicap accessible.

4.4.2.9.1 Toilets: Toilets shall be provided in accordance with the National Standard Plumbing Code. Provide handicap accessible toilet in each toilet room with grab bars in accordance with ADA and UFAS requirements. Toilets shall be vitreous china. Grab bars shall be stainless steel with hidden fasteners.

4.4.2.9.2 Lavatories: Lavatories shall be provided in accordance with the National Standard Plumbing Code. Provide at least one handicapped accessible lavatory in each toilet room. Lavatories shall be vitreous china mounted under counter. Counter shall be, wall mounted, solid surface polymer as described below in "Solid Surfaces", or other nonporous, hard surface, easily

maintained product at least 1 inch thick with side panels, intermediate supports, with 4 inch back splash and 4" end splashes at walls. Counters shall be sealed to walls.

4.4.2.9.3 Shower/Shower Room: Provide at least one shower in each toilet room or adjacent to each toilet room in separate room with door. Shower unit shall be one-piece acrylic with built-in soap dish, shower curtain rod, and shower curtain. Shower curtain rod shall be stainless steel. Shower shall be provided with a recessed low-voltage, recessed ceiling mounted light fixture, switched from outside the shower compartment. Shower units shall be provided with a full soffit to the ceiling with an access panel for the shower light transformer. Shower rooms shall be provided with floor drains. Shower room shall be provided with one 3-foot long bench, with door and privacy lockset.

4.4.2.9.4 Toilet Accessories: All toilet accessories shall be satin finish stainless steel. All toilet accessories shall be blocked in walls. Toilet accessory finishes shall be compatible with one another and shall be coordinated.

4.4.2.9.4.1 Grab Bars: Grab bars shall be provided in all handicapped accessible toilet rooms in accordance with ADA and Uniform Federal Accessibility Standards and in conformance with FS WW-P-541.

4.4.2.9.4.2 Glass Mirrors: Shall be provided in conformance with FS DD-M-411. Provide mirrors in each toilet and shower room. Provide one 18 inch x 30 inch tilt mirror above each handicap lavatory.

4.4.2.9.4.3 Toilet Seat Cover Dispenser: Provide one toilet seat cover dispenser with a capacity of 200 seat covers in each toilet room. Dispenser shall be stainless steel.

4.4.2.9.4.4 Toilet Tissue Dispenser: Provide a wall mounted, stainless steel toilet tissue dispenser in each toilet compartment. Toilet tissue dispensers shall have two rolls of tissue stacked vertically and shall be roller mounted on two support brackets. Brackets shall be stainless steel.

4.4.2.9.4.5 Soap Dispenser: Provide one soap dispenser for each lavatory. Soap dispensers shall be liquid type consisting of Type 304 stainless steel tank with holding capacity of 32 fluid ounces with a corrosion-resistant all-purpose valve that dispenses liquid soaps, provided in combination with a wall mounted glass mirror over each lavatory. All toilet rooms shall be handicapped accessible per ADA and UFAS requirements.

4.4.2.9.4.6 Paper Towel Dispenser/Disposer: Provide semi-recessed, wall mounted, stainless steel, combination paper towel dispenser and disposal near lavatory in each toilet room. Dispenser/receptacle shall have a capacity of 400 sheets of C-fold, single-fold, or quarter-fold paper towels. Waste receptacle shall be designed to be locked in unit and removable for service. Locking mechanism shall be tumbler key lock. Waste receptacle shall have a capacity of 12 gallons. Unit shall be fabricated of not less than 0.030-inch stainless steel welded construction with all exposed surfaces having a satin finish. Waste receptacle that accepts reusable liner standard for unit manufacturer shall be provided.

4.4.2.10 Janitor Supply Closet: The Janitor Supply Closet shall be constructed with ceramic tile floor and glazed concrete masonry unit walls. The Janitor Supply Closet shall be provided for storage of janitor supplies kennel cleaning supplies. This room shall have a minimum of 40 linear feet of fixed, wall-mounted stainless steel shelves and a floor mounted mop sink with mop rack. Mop sink shall be provided with a back/side splashes. Shelving shall be 3 high, 12 inches deep, and mounted horizontally at 16 inches on center starting 3 feet above finish floor.

4.4.2.11 Drug Room: Provide a drug storage room. The drug room shall have an independent security system monitored by the military police to be provided by the contractor under this RFP. The drug room will house two 4-foot wide x 4 feet high x 30-inch deep safes, two standard type file cabinets, 2 feet x 3 feet desk with chair. All equipment and furniture will be provided and installed by the government. The Drug Room shall be designed in accordance with AR 190-12, AR 190-51 and AR 195-5. Features such as a security door and a separate independent security system shall be a requirement for the drug room.

4.4.2.12 Vending Area: Provide area approximately 42' deep x 7' wide for two vending machines. Provide electrical outlets. Vending machine to be provided and installed by others.

4.4.2.13 Mechanical Room: Doors shall open directly to the exterior and shall be minimum (2) 3'-0" wide x 7'-0" high steel doors with steel frames. Provide room size required for facility.

4.4.2.14 Electrical/communications Room: Provide room size required for facility.

4.4.3 Kennel Area

4.4.3.1 Kennel Runs: Provide 13 kennel runs (partially interior and partially exterior) with sealed concrete floors, gates, full height non-abrasive durable side and rear walls, acoustically insulated ceiling (baffles), and guillotine doors. Square footage for this area shall be calculated as 88 square feet within the building footprint. No square footage shall be counted for the exterior run or the overhang. A concrete walkway shall be provided around the exterior of the runs to the entrance door. The Kennel Run Area shall be designed to accommodate future expansion of the kennel runs to a total 20.

4.4.3.1.1 Guillotine Doors: Guillotine doors shall be located on the exterior walls of every kennel run. Guillotine doors shall have individual operators located on the interior of the building operated outside each kennel run. Guillotine doors shall be minimum 30-inch square, 1/4-inch aluminum diamond plate with aluminum sidetracks and aluminum top track. Door operator shall be provided with mechanism to prevent free falling of the door while in the open position or while being opened or closed and to prevent the door from being pulled off track while opening door.

4.4.3.1.2 Floors: Floors for the kennel run shall slope from the guillotine door sills to the central corridor on the interior and from the guillotine door sills to the end of the run on the exterior.

4.4.3.1.3 Walls: Sidewalls between runs and back walls (building wall) shall be constructed of full height, glazed CMU (Concrete Masonry Units).

4.4.3.1.4 Overhang: A 4-foot soffit overhang shall be provided from the exterior walls over the exterior portion of the kennel runs to provide a shade area for the canines. Location for a K9 pallet, 32-inch square shall be provided in this RFP. The pallets shall be provided and installed by the government.

4.4.3.2 Kennel Storage Room: Kennel storage room shall be provided to accommodate cleaning supplies, mops and brooms, steam cleaner, etc. Vinyl covered wire shelves shall be provided along one wall of the room. Three shelves shall provided 16" deep x room width located at 16" O.C. horizontally starting 3'-6" above floor. Shelves shall have 400 PSI capacity. Ten stainless clips, mounted on 1-inch thick, 6-inch high, solid plastic backboard shall be provided for storage of mops and brooms.

4.4.3.3 Kennel Break Area: Provide three kennel break areas adjacent to the kennel runs. Break areas shall be uncovered, 8' high fenced areas, with gates as described above, and grass floors. Fence bottoms shall be buried 12" into the ground.

4.5 GENERAL REQUIREMENTS:

4.5.1 See Table I - Room/Space/Equipment Tabulation above and Attachment 1, "Diagram Showing Adjacencies and Organizational Structure" required by this RFP.

4.5.2 Minimum Ceiling Height: The minimum finish ceiling height shall be 8'-0".

4.5.3 Vision Panels: Doors to all enclosed offices shall have vision panels.

4.5.4 Accessibility: All areas and rooms, except mechanical, electrical rooms shall be handicapped accessible per the Uniform Federal Accessibility Standards and ADAAG. Access walks, ramps and public ways shall also be accessible per the above stated criteria.

4.5.5 Acoustical Design: The designers must address isolation of noise from a variety of sources, including but not limited to; office to office, corridors to work offices/training areas, mechanical/electrical equipment and kennel area. Acoustical treatment of the walls and ceiling must be designed to provide an STC rating that isolates the noises from the sources listed above. Walls between rooms and corridors must have a sound transmission class (STC) of at least 50. Doors in those walls must have an STC of at least 45. Ceiling assemblies must have an STC of at least 55. Sufficient insulating material shall be provided in the attic space to meet both the thermal and acoustical requirements specified herein.

4.5.6 Comprehensive Interior Design (CID) - Procurement and installation of freestanding furniture is included as Option No. 2 under this RFP. The spaces shall be configured to accommodate the furniture indicated. The Contractor is required to provide/procure the freestanding or conventional furniture/furnishings of the CID package under Option No. 2. If Option No. 2

is not exercised, the Government will procure, warehouse, and install the furniture/furnishings specified in the CID package.

4.5.6.1 Interior Finishes:

4.5.6.2 Floors

4.5.6.2.1 Carpets: Carpets shall not be provided in this facility.

4.5.6.2.2 Vinyl Composition Tile: Vinyl Composition Tile shall be provided in the Storage Rooms and Drug Room.

4.5.6.2.3 Sealed Concrete Floors: Sealed Concrete Floors shall be provided in the Kennel Runs, Kennel Room Corridor, Mechanical/Electrical Rooms, and Isolation Room.

4.5.6.2.4 Ceramic/Porcelain Tile: Tile shall be provided in toilet rooms, shower rooms, and the Entry Vestibule.

4.5.6.2.5 Sheet Vinyl Flooring: Sheet vinyl flooring shall be provided in all other areas unless indicated otherwise.

4.5.6.3 Walls

4.5.6.3.1 Vinyl Wall Coverings: Unless indicated in other sections of this RFP, Vinyl Wall Coverings shall be provided in individual offices.

4.5.6.3.2 Ceramic Tile Walls: Unless indicated in other sections of this RFP, ceramic tile shall be provided in toilet rooms, shower rooms, and janitor closet on walls and floors.

4.5.6.3.3 Painted Walls: Unless indicated in other sections of this RFP, paint shall be provided on all walls except where vinyl wall covering, glazed CMU, or Ceramic/Porcelain Tile is being provided. Paint shall be Low Luster Type.

4.5.6.3.4 Durable Interior Walls: The entry vestibule shall be provided with any acceptable durable surface.

4.5.6.4 Ceilings

4.5.6.4.1 Acoustical Ceiling Tile: Unless indicated in other sections of this RFP, acoustical ceiling tile shall be provided in individual and open offices, and corridor.

4.5.6.4.2 The entry vestibule shall be provided with a painted plaster ceiling or any comparable acceptable durable surface.

4.5.6.4.3 Paint: Painted gypsum board shall be provided on all ceilings not listed for other finishes.

4.6 BUILDING SHELL

4.6.1 Foundation & Floor Construction: The building will be permanent construction of concrete foundation and floor slab.

4.6.2 Steel Doors and Frames: Exterior doors shall be heavy-duty 1 3/4" thick steel, heavy duty, commercial style steel doors and steel frames, except for aluminum/glass storefront-type doors at entrances. Exterior doors shall be insulated and weather-stripped.

4.6.3 Aluminum Store-Front Type Doors and Exterior Windows: Doors and windows shall be glazed with laminated insulated glass in accordance with the Interim Department of Defense Antiterrorism/Force Protection Construction Standards and shall conform to ASTM E 773 and ASTM E 74. Glazing shall be bronze tinted. Glazing shall have a maximum condensation factor of 48% in accordance with AAMA 1502.7. Frame shall have bronze anodized finish with a minimum of 0.4-mil thick. Organic coating shall be manufacturer's standard acrylic or polyester, bake-on, electrostatically applied enamel coating of 1.0 +.2 mils dry film thickness minimum. All coatings shall be factory applied.

4.6.4 Windows bronze tinted glass and bronze anodized finished frames. All windows shall be heavy commercial class 40 (HC-40) grade. All window frames shall have laminated glazing units in accordance with the Interim Department of Defense Antiterrorism/Force Protection Construction Standards. All window frames shall be constructed with a thermal break feature. All window frames shall be designed to withstand a 90 mile per hour wind velocity. Windowsills shall be solid surface polymer or other nonporous, hard surface, easily maintained product.

4.6.5 Interior Glazing: Glass shall conform to the requirements of ASTM C1036. Glass in doors and adjacent to doors shall conform to the requirements of CFR 16 Part 1201. Glazing of interior vision panels shall conform to CFR 16 Part 1201.

4.6.6 Roof for the building shall be a asphalt shingle with minimum slope of 3 on 12. Provide continuous roof slope to the perimeter of the building. Do not design interior valleys or depressions that will form ponds. The roof shall have no roof drains but shall dispose of water by gutters and downspouts. See Section 01011, Chapter 2 for gutter and downspout design, gutter screening and downspout connection requirements.

4.6.6.1 Roof Shingles: Shingles shall be three tab type, 30 year warranty, over 15# building paper, and plywood sheathing.

4.6.6.2 Sheet Metalwork: Flashing shall be installed in conformance with the SMACNA Architectural Sheet Metal Manual.

4.6.6.3 Insulation

4.6.6.3.1 Provide the minimum insulation values as follows:

	RSI Value	"U" Value Equivalent
Gross Wall	19	.052
Roof	30	.033

TABLE II - Minimum Insulation Values

4.6.6.3.2 Gross Wall U-factor is the U-factor sum of each wall component (opaque wall, windows, doors, openings, etc.) times the area of that wall component, the sum divided by the total wall area.

4.6.6.3.3 Thermal and sound insulation shall have a flame spread rating of 25 or less and a smoke development rating of 50 or less exclusive of the barrier when tested in accordance with ASTM E-84. A vapor barrier shall be provided on the warm side of exterior and ceiling/roof insulation where occurs. Insulation shall have a facing providing permeability of 0.1 perm or less when tested in accordance with ASTM E 96.

4.6.6.4 Mechanical room shall have direct exterior access. Doorway for mechanical room shall be sized to permit maintenance and replacement of equipment located inside. Any mechanical/electrical equipment put on the exterior of these rooms shall be located adjacent to the mechanical room in an appropriate enclosure. This enclosure shall be of the same material as the exterior wall and shall extend to a height that conceals the equipment (wall height shall be not less than 6 feet tall). See also paragraph 4.3.3. for further requirements for exterior equipment. Equipment in this enclosure shall have a minimum 36" clearance on all sides.

4.6.6.4.1 As a minimum, exterior wall construction for the K-9 Kennel Facility shall be architectural CMU and the Installation Design Guide. Vertical expansion joints in masonry walls shall be placed between wall openings and pilasters, not adjacent to pilasters or at the end of lintels.

4.6.6.4.2 Concrete Masonry Units: Hollow and solid concrete masonry units shall conform to ASTM C 90, Type I, Normal weight. Cement shall have low alkali content and be of one brand. Units shall be modular in size and shall include closer, jamb, header, lintel, and bond beam units and special shapes and sizes to complete the work. Units used in exposed masonry surfaces shall have a uniform fine to medium texture and a uniform color. Concrete masonry units used in fire-rated construction shall be of minimum equivalent thickness for the fire rating indicated.

4.6.6.4.3 Glazed Concrete Masonry Units: Glazed hollow and solid concrete masonry units shall conform to ASTM 126, Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units. Cement shall have low alkali content and be of one brand. Units shall be modular in size and shall include closer, jamb, header, lintel, and bond beam units and special shapes and sizes to complete the work. Units shall have a uniform smooth texture and color. Concrete masonry units used in fire-rated construction shall be of minimum equivalent thickness for the fire rating indicated.

4.6.6.5 Caulking and Sealants: Caulking and sealants shall be selected according to materials it is being applied to for compatibility. These sealants and caulks shall be of either a two-component, rubber base; chemical-curing compound based on polysulfide and/or polyurethane; or a single-component, rubber base, chemical curing compound such as polysulfides, polyurethanes, and silicones. Caulking shall occur around all door frames, all window frames, and at all material changes. The minimum joint width shall be 1/4 inch, and joint widths in excess of 1/4 inch shall have a backstop material provided in the joint, and the depth of all joints shall be equal to the width. Color to match adjacent materials.

4.7 INTERIOR CONSTRUCTION

4.7.1 Interior Partitions: Heights shall be minimum 8 feet 0 inch. Interior partitions shall either be steel stud with gypsum wallboard finish or a combination CMU/steel stud with gypsum wallboard finish as indicated in Chapter 4.4.

4.7.1.1 Steel Framing: Cold-formed framing shall consist of steel studs, top and bottom tracks, runners, horizontal bridging, and other cold-formed members and other accessories. All members and components made of sheet steel shall be hot-dip galvanized in accordance with ASTM A 653/A 653M with a minimum coating thickness of G40. Studs shall conform to ASTM C 645. Studs shall be C-shaped, roll formed steel with minimum uncoated design thickness of 0.0284 inch.

4.7.1.2 Gypsum Wallboard: Gypsum wallboard shall conform to the requirements of ASTM C36 and be 48" wide, 5/8" thick and tapered edged. Steel framing, furring, and related items shall conform to the requirements of ASTM C645 and C955 where applicable. Joint treatment materials shall conform to the requirements of ASTM C475. Screws shall conform to the requirements of ASTM C 1002 and C 954 where applicable. Corner beads, edge trim, and control (expansion) joints shall conform to the requirements of ASTM C1047, and shall be corrosion protective-coated steel design 11 for its intended use. Flanges shall be free of dirt, grease, and other materials that may adversely affect the bond of joint treatment.

4.7.1.3 Acoustical Ceilings: Acoustical ceiling tile shall conform to ASTM E1264; Class A. Panel size shall be 2 feet by 2 feet. The suspension system shall conform to ASTM C635. Compression struts shall be provided at 12'-0" intervals in both directions and shall be provided 4'-0" from each wall. Hanger wires shall be provided, splayed in four directions from each compression strut and through the compression strut to the structure above per TI 809-04, Seismic Design for Buildings. Size and diameter of strut shall be derived from a standard table or arrived at by engineering calculations.

4.7.1.4 Steel Doors: Interior doors shall be heavy weight 1 3/4" hollow core flush doors, painted. Door lites on interior doors shall be sized in accordance with building codes and positioned at a height above finished floor to allow vision on both sides. Exterior doors shall be heavy weight 1-3/4" insulated core steel doors and shall be sized in accordance with building codes and positioned at a height above finished floor to allow vision on both sides. Interior or exterior wood doors will not be permitted.

4.7.1.4.1 Hardware: All interior hardware in this building shall be consistent and shall have a brushed aluminum finish.

4.7.1.4.2 Hinges: Exterior hinges shall have non-removable pins and be stainless steel; Grade 1 (except at doors to Michele rooms, which may be Grade 3); anti-friction or ball bearing; and 3 each of 4-1/2" x 4-1/2" per leaf up to 3' wide door 5" x 5" for doors 3' to 4' wide. Interior hinges shall be Grade 1; antifriction or ball bearing; and 3 each of 4-1/2" x 4-1/2" Per leaf up to 3' wide door 5" x 5" for doors 3' to 4' wide Hinges for labeled fire doors must be either steel or stainless steel. Exterior hinges for aluminum/glass storefront type doors shall be pivot hinges or offset

pivot hinges (3 per leaf). Hinges shall conform to ANSI/BHMA A156.1 and A156.7.

4.7.1.4.3 Locksets, Latchets, Exit Devices, and Push and Pull Plates: Exterior doors shall have mortise locks conforming to ANSI/BHMA A156.13 for metal doors and conforming to ANSI/BHMA A156.5 for aluminum/glass store front-type doors, Grade 1. Emergency exit devices shall be Grade 1, flush-mounted type. Interior doors shall have mortise locksets conforming to ANSI/BHMA A156.13, Series 1000, Grade 1. All locks and latch sets shall be the product of the same manufacturer. Locksets and latch sets shall be provided, as required, with lever handles on each side.

4.7.1.4.4 Cylinders: Lock cylinders shall comply with BHMA A156.5 and be compatible with BEST. Lock cylinder shall have seven pins. Cylinders shall have key removable type cores. Provide an extension of the existing keying system. The existing locks were manufactured by BEST (seven pin with "D" keyway) and have interchangeable cores. Construction cores shall be provided. All locksets, exit devices, and padlocks shall accept same interchangeable cores.

4.7.1.4.5 Closers: Closers shall be provided on all exterior doors and fire-rated doors. Closers shall conform to ANSI/BHMA A156.4, Grade 1. Closers shall be surface-mounted, modern type, with cover. Closers shall be provided with options PT-4F and PT-4H (delayed action and barrier free).

4.7.1.4.6 Keying: Keying shall be similar to BEST Series with seven-pin tumbler removable core locks. All keying shall be done at the-factory. All locks shall be furnished with removable core cylinders. Replacement cores shall be BEST removable cores. Keys and permanent cores shall be shipped directly to the Directorate of Installation Support, Ft Belvoir, VA. All exterior doors shall be keyed alike in one group. All interior doors shall be keyed as specified by the facility user. All submittals/shop drawings referring to keys and keying shall be submitted to the Directorate of Installation Support for coordination and approval. A key cabinet shall be provided with a capacity 50% greater than the number of key changes used for door locks. Location of Key cabinet shall as directed by user.

4.7.1.4.7 Thresholds: All exterior doors (except Mech/Elec rooms) shall be provided with aluminum thresholds conforming to ANSI/BHMA A156.21 and are handicapped accessible; color to be bronze. Doors at ceramic tile flooring shall be provided with marble thresholds that are handicapped accessible.

4.7.1.4.8 Kick Plates and Mop Plates: Metal Kick plates or mop plates shall be provided on all doors. Match metal finish with door hardware finish as specified in this section. Kick plates and mop plates shall comply with ANSI/BHMA A156.6, shall be 16" high by 2" less than width of door. Edges shall be beveled.

4.7.1.4.9 Door Stops: Doorstops shall be provided on all exterior and interior doors. Doorstops shall comply with ANSI/BHMA A156.16 and shall be bronze, Grade 1.

4.7.1.5 Glazing: Glass shall conform to the requirements of ASTM C1036. Glass in doors and adjacent to doors shall conform to the requirements of CFR

16 Part 1201. Glazing of interior vision panels shall conform to CFR 16 Part 1201.

4.7.1.6 Ceramic Tile: Tile shall be standard grade conforming to ANSI A137.1. Tile shall be impact resistant with a minimum breaking strength for wall tile of 90 lbs and 250 lbs for floor tile in accordance with ASTM C 648. Water absorption shall be 0.5 maximum percent in accordance with ASTM C 373. Floor tile shall have a minimum static coefficient of friction of 0.5 in accordance with ASTM C 1028. Tile shall be Class III as rated by the manufacturer when tested in accordance with ASTM C 1027 for abrasion resistance as related to foot traffic. Ceramic mosaic tile and trim shall be unglazed natural clay with cushion edges. Tile size shall be 2 x 2 inches. Glazed wall tile and trim shall be cushion edged with matte glaze. Tile shall be 4-1/4 x 4-1/4 or 6 x 6 inches.

4.7.1.6.1 Tile setting Bed: The setting-bed shall be composed of portland cement, sand, water, and hydrated lime. Portland cement shall conform to ASTM C 150, Type I, white for wall mortar and gray for other uses. Sand shall conform to ASTM C 144. Hydrated lime shall conform to ASTM C 206, Type S or ASTM C 207, Type S. Water shall be potable.

4.7.1.6.2 Tile Backer Board: All ceramic wall tile shall be backed with cementitious backer board.

4.7.1.6.3 Mortar and Grout: Dry-set portland cement Mortar shall conform to ANSI A118.1. Latex portland cement Mortar shall conform to ANSI A118.4. Ceramic tile Grout shall conform to ANSI A118.6. Tile Backer Board shall comply with ANSI A118.9. Tile adhesives shall not be used for this project.

4.7.1.6.4 Marble Thresholds: Marble shall be Group A as classified by MIA-01. Marble shall have a fine sand-rubbed finish and shall be white in color as approved by the Contracting Officer. Marble abrasion shall be not less than 12.0 when tested in accordance with ASTM C 241.

4.7.1.6.5 Porcelain Paver Tiles: Porcelain paver tiles shall be of standard grade quality and shall conform to requirements of ANSI A137.1, ASTM C373, ASTM C501, and ASTM C648. Coefficient of friction shall be minimum O.S. Unglazed porcelain tile shall be unpolished. Porcelain tile shall be furnished in nominal 12" x 12" size. Base shall be cove type with inside and outside corners.

4.7.1.6.6 Resilient Flooring: Sheet vinyl shall conform to FS LF 475A (3) Type II; Grade A. Static load limit according to ASTM F 970 shall be not less than 12.5 psi. Sheet vinyl flooring shall be not less than 72 inches wide and shall have an alkali and moisture resistant backing. Color and pattern shall be dispensed uniformly throughout the thickness of the wear layer. Integral (flash) cove is created by extending the sheet vinyl 4 inches up the wall supported by a cove stick having a minimum radius of 7/8 inch and adhering to the wall with manufacturer's suggested adhesive and heat welding the seams. The integral coving shall be capped with an approved cap strip installed in accordance with the manufacturer's recommendations. Wall base shall conform to FS SS-W-40, Type I or Type II; Style B. Base shall be 4-inches high, minimum 0.080-inch thick. Edge strips of vinyl plastic, 1 inch wide and of thickness to match flooring. Adhesive for flooring', integral coving and wall base shall be as recommended by the flooring manufacturer. To create

seams that provide a strong barrier against dirt and moisture penetration, the seams shall be heat welded per manufacturer's recommendations. Polish shall conform to FS 2F 430 or FS PW 155.

4.7.1.7 Fire stopping: Material shall have a flame spread of 25 or less, a smoke developed rating of 50 or less, and a fuel contribution of 50 or less when tested in accordance with ASTM E 84 or UL 723. The materials shall be nontoxic to human beings at all stages of applications and during fire conditions. Fire stopping materials for through penetrations of fire resistance rated construction shall provide fire resistance rating in accordance to ASTM E 814 or UL 1479. Fire stopping materials for construction joints in fire resistance rated construction shall provide a fire resistance rating in accordance to ASTM E 119 or UL 263. Construction joints include those joints used to accommodate expansion, contraction, wind or seismic movement of the building. Material shall be non-combustible when tested in accordance with ASTM E 136.

4.7.1.8 Painting: Interior surfaces, except factory prefinished material or interior surfaces receiving acoustical wall covering or vinyl wall covering, shall be painted a minimum of two prime coats and one finish coat. The prime coats for concrete masonry units shall be TT-F-1098. All spaces shall have satin or eggshell or semi-gloss finish on walls, semi-gloss finish on trim and eggshell or semi-gloss finish on ceilings. Multi-colored paint systems shall be applied according to manufacturer's installation instructions and warranty. All exterior surfaces to be painted, including all utility appendages shall receive a minimum of one prime coat and two finish coats of paint. Water repellent sealer shall be clear, water repellent solution designed to protect vertical concrete masonry surfaces from water penetration. Application of paint. Paint shall be applied by brush or roller. Spray painting method shall be used only under approved conditions. Before start of spraying, all surfaces that do not require painting shall be completely masked and protected. Adequate drop cloths shall be provided over floors that may be stained or damaged from the spray work. The Contractor shall be liable for all damage resulting from the spray painting operation. All such damages shall be satisfactorily repaired and resolved at no additional cost to the Government. Adequate ventilation shall be provided during paint application. All persons engaged in spray painting shall wear respirators. Adjacent areas shall be protected by approved precautionary measures. Paints shall comply with State Regulations and the following Federal and Military Specifications. No lead paints are acceptable. Interior latex paints are not permitted in toilet rooms. Colors shall be as approved from schemes submitted with proposal. Each proposal shall include one basic exterior and interior color coordinated schemes and color samples. Pipes in exposed areas and in accessible pipe spaces shall be provided with color band and titles in accordance with Mil-Std. Coat floor of mechanical room with a polyurethane coating to resist oil and chemical spillage and stains.

4.7.1.9 Fire Extinguishers: Fire extinguisher cabinets shall be provided complete with 10-pound ABC fire extinguishers. Cabinets shall be located in accordance with NFPA standards. Fire extinguisher cabinets shall be recessed and cabinet is to have factory-finished color to match adjacent wall with a clear, break glass door. Cabinet box shall be 18 gauge steel with baked enamel finish. Steel door and trim shall be one-piece construction with a continuous hinge and door shall be lockable. Trim shall be rolled edge and finished in white baked enamel. Door shall be 5/8-inch thick, one-piece

hollow steel, full glazed steel frame with rubber roller catch and satin finish door handle, and white baked enamel finish. As a minimum, provide fire extinguisher cabinets in the following quantities: one each in Mechanical/Electrical room(s) and in each corridor. Cabinets shall be located in accordance with the provisions of NFPA 10, which may require more than those listed here due to travel distance.

4.7.1.10 Casework: All casework shall meet the requirements of the Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program as set forth by the Architectural Woodwork Institute for architectural cabinets with high-pressure decorative laminate (HPDL) Quality shall be custom grade. See section below for solid surface countertops and solid surface countertops with integral sinks.

4.7.1.11 Blinds shall be provided at all exterior windows with the exception of entrance. Horizontal blinds shall conform to FS AA-V-00200, Type 11, 1 inch slats, except as modified below. Blind units shall be capable of nominally 190-degree partial tilting operation and full-height raising. Blinds shall be inside mount. Head Channel and Slats: Head channel shall be steel not less than 0.024 inch for Type II. Slats shall be aluminum, not less than 0.0080 inch thick, and of sufficient strength to prevent sag or bow in the finished blind. A sufficient amount of slats shall be provided to assure proper control, uniform spacing, and adequate overlap. Controls: The slats shall be tilted by a transparent tilting wand, hung vertically by its own weight, and shall swivel for easy operation. The □tilter control shall be of enclosed construction. All moving parts and mechanical drive shall be made of compatible materials, which do not require lubrication during normal expected life. The tilter shall tilt the slats to any desired angle and hold them at that angle so that any vibration or movement of ladders and slats will not drive the tilter and change the angle of slats. A mechanism shall be included to prevent over tightening. The wand shall be of sufficient length to reach to within 5 feet of the floor. Cord Manager shall be installed 54 inches above the finished floor. Intermediate Brackets: Intermediate brackets shall be provided for installation of blinds over 84 inches wide or over 100 inches long and shall be installed as recommended by the manufacturer.

4.7.1.12 Signage

4.7.1.12.1 Interior signs are to be provided as follows:

4.7.1.12.1.1 Identification Signs. Signs in this category consist of office, module room identification and service identification. Office identification signs consist of a permanent header panel with the room number and an insert panel that identifies the occupant. The insert panel is a clear sleeve, which will accept a plastic insert with the name of the occupant. Permanent header panel dimensions: 9 inch x 3 inch. The insert panel dimensions: 9 inch X 3 inch overall sign dimensions: 9 inch x 6 inch. Room number shall be Helvetica medium, 1-1/2 inch numbers, flush left. Occupant name shall be upper and lower case Helvetica medium, 1/2 inch capital letter height, flush left. Insert area will accommodate two lines with a maximum of 21 tiles or characters per line.

4.7.1.12.1.1.1 Service identification signs are used to identify toilet rooms, shower rooms, and other like services. Service signs dimensions: 6 inch x 9 inch. The standard pictograph symbols shall be used. Service name

shall be Helvetica medium upper and lower case, 1-inch capital letter height, centered. Identification signs shall consist of a permanent header panel with the room number. There will be one insert panel. The panel will contain the room name. Overall sign dimension shall be 6 inch x 6 inch. Room number shall be Helvetica medium, 1-1/2 inch numbers, flush left.

4.7.1.12.2 Interior Signage Products: Interior signage shall be ADA compliant. Aluminum extrusions shall be at least 1/16 inch thick, and aluminum plate or sheet shall be at least 16 gauge, .051 inch thick. Extrusions shall conform to ASTM B 221; plate and sheet shall conform to ASTM B 209. Vinyl sheeting for graphics shall conform to MS MIL-M-43719, minimum 3 mil film thickness. Film shall include a precoated pressure sensitive adhesive backing (Class 3). Acrylic sheet shall conform to ASTM D 702, Type III. Changeable message strip plaque signs shall consist of acrylic or plexiglas back laminated to matte finish acrylic plastic face with message slots as detailed for insertion of changeable message strips. Individual .062 inch thick message strips to permit removal, change and reinsertion shall be provided. Signage that provides emergency information, general circulation directions or identification of rooms and spaces shall be tactile (perceptible to touch) and shall comply with ANSI A117.1, paragraph 4.27. Characters, symbols or pictographs on tactile signs shall be recessed or raised .032 inch minimum. Tactile letters and numbers shall be sans serif upper case. Tactile characters or symbols shall be at least 5/8 inch high, but no higher than a nominal 2 inches. Characters and symbols shall contrast with their background. Signage vendor shall provide lettering machine so user can change signage as needed.

4.7.1.12.3 Exterior Signs: Provide signs that comply with the Installation Design Guide and comply with sign standards provided in TM 5-807-10; "Signage". The contracting officer shall approve exterior signage.

4.7.1.13 Freestanding Furniture: The Contractor is required to coordinate the interior finish selections with the furnishings that will be specified in the CID package. Option No. 2 of this RFP requires the purchase and installation of all furnishings that are included in the CID package by the contractor. Included as Attachment 2, is a description of the furniture quality requirements. Furniture shall be designed to accommodate the functions and requirements of the building. The Contractor shall make recommendations on use of freestanding/conventional furniture. Submittal and drawing requirements to be included in CID package are listed below.

4.7.1.14 Recessed Foot Grille: Recessed foot grille shall be carpet tread, mechanically secured in tread rails. Carpet shall be 100 percent nylon. Tread rails shall be spaced 1-1/2" inches on center running perpendicular to traffic flow. Tread rails, key lock bars, and framing shall be extruded aluminum. Framing shall have standard mill finish. All grille and framing sections when installed shall be designed to support a minimum uniform load of 200 pounds per square foot. Drain pan application shall include a 16-gauge aluminum waterproof pan with a 2-inch drain and strainer; pan shall be securely attached to the bottom surface of the frame. Recessed floor grid shall be as manufactured by Arden Architectural Specialties, Inc., Balco Inc., Construction" Specialties Inc. or approved equal.

4.7.1.15 Solid Surfaces: Solid surface components shall be solid, non-porous polymer, not coated, laminated or of composite construction similar to

"Santana" or approved equal. Materials shall have minimum physical and performance properties specified. Superficial damage to a depth of 1/10th inch shall be repairable by sanding or polishing. Material for toilet partitions shall be standard 1 inch thick. Material for Counter tops and windowsills shall be standard 1/2 inch thick. Lavatory/sinks shall be an integral part of the counter top. Lavatory/sinks shall be attached by a seamed under mount method. Material shall be a small scale, variegated pattern to the extent possible. Solid color solid surface shall not be used. Color should be in light to medium tones as dark colors tend to show scratches and water spots more readily. Lavatory counters and toilet partitions shall be of a color to accent the finish colors in the room in which the solid surfacing material is scheduled. Sheen shall be matte satin. Edge treatment shall be eased, rounded edges.

4.7.1.16 Vinyl Wall Covering: Vinyl wall covering shall be a vinyl coated woven or nonwoven fabric with mildew and germicidal additives and shall conform to FS CCC-W-408, Type 11, 13.1 to 24 ounces total weight per yard and width of 54 inches. Pattern and color of vinyl wall covering shall be as selected from manufacturer's standard colors and patterns.

4.8 INTERIOR FINISHES

4.8.1 Interior finishes and materials shall be specified with durability, maintenance, function, life cycle costs, code requirements and aesthetics being considered. Finishes and materials shall support the architectural elements and reflect the image and style of the using agency.

4.8.2 One species of wood and/or stain to represent one species of wood shall be specified throughout the entire facility. This encompasses doors, casework, chair rails, trim etc.

4.8.3 Submittal requirements for finishes and approvals are listed in Attachment Structural Interior Design, Submittal Requirements.

4.8.4 Upon the completion of construction, the Contractor shall provide and deliver at no additional cost, to the Contracting Officer, one percent extra of each color and texture of paver tile, ceramic tile, base, acoustical ceiling tile, wall covering and sheet vinyl of each total amount of each item used on the project.

4.8.5 Interior finishes shall be selected to meet the Federal Procurement Policy guidelines to comply with Section 6002 of the Resource Conservation and Recovery Act (RCRA), "Federal Procurement"; and Executive Order (EO) 12873, "Federal Acquisition Recycling and Waste Prevention, 1 May 1996 as well as ETL 1110-3-491, Sustainable Design for Military Facilities. (ETLs may be accessed at <http://www.usace.army.mil/inet/usace-docs/ena-tech~ltrs/>). Within parameter of performance, cost, aesthetics and availability, carefully select and specify building materials that limit impacts on the environment and occupant health. Building shall be free of asbestos containing material pursuant to OSHA asbestos regulations governing building owners, 29 CFR Part 1926, including Section 1926 (k). Limit VOC content in adhesives. At a minimum all adhesives must meet the Air Quality Management rules. Limit the VOC content in architectural sealants (material with "adhesive" characteristics used as filler; not material used as a "coating") At a minimum, all sealants must meet the limits of Regulation 8, Rule 51 of the

Bay Area Air Resources Board. Limit the VOC content in paints and coatings. At a minimum all paints and coatings must meet the requirements of Rule 1113, Mojave Desert Air Quality Management District. Consider using the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Building Rating System as an outline of environmental performance targets for the project. (U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Building Rating System can be accessed at: <http://www.usgbc.org/programs>).

4.8.5.1 Elimination of virgin material requirements

4.8.5.2 Use of recovered materials

4.8.5.3 Reuse of products

4.8.5.4 Life cycle costs

Recyclability

Environmental preferability

Waste prevention, including toxicity reduction

Disposal

Buy locally to minimize impact of transporting

4.9 INTERIOR COLORS

4.9.1 Finish and color selection shall be appropriate to the interior design intent to support the occupants, their activities and their customers.

4.9.2 Permanent finishes include paver tile, ceramic tile, plastic laminates, solid surface materials, sheet vinyl, vinyl composition tile, and horizontal blinds.

4.9.3 Non-permanent finishes include paint and other items that are relatively easy and inexpensive to replace.

4.9.4 Colors and finishes shall be selected based on durability, maintenance, life cycle costs, code requirements, appearance and functional considerations. Variegated finishes and patterns are recommended to be implemented to the maximum extent possible as solids show wear and tear. Integral color and color through finishes shall be specified where applicable.

4.9.5 The colors and textures specified shall not date the facility and shall create an interior that will remain aesthetically pleasing over time. Finishes and materials shall support the architectural elements and reflect the image and style of the using agency.

4.10 PROCUREMENT

4.10.1 Federal Procurement: In order for the furniture package to be successful, the contractor/designer must have a working knowledge of the Federal procurement system. The furniture package must be designed around items that will be available through allowable procurement sources at the time of procurement.

4.10.2 Government Sources: Priorities for the use of Government supply sources shall be in accordance with Title 48 Federal Acquisition Regulations System (FARS), Part 8.00. All furniture selections shall attempt to utilize Federal Prison Industries, Inc. or Federal Supply Service (GSA contracts with commercial manufacturers) items. (UNICOR - <http://www.unicor.gov/schedule/index.htm>. GSA Federal Supply Schedules - <http://www.fss.gsa.gov/>)

4.10.3 When it is determined that such items procured through UNICOR sources will not serve the required purposes, a request for a waiver will be prepared according to the standards set out in the UNICOR waiver policy. The Contractor, acting as the Government Agent, shall prepare and apply for the waiver. Information shall be obtained electronically through <http://www.unicor.gov/customer/wavierform.htm>.

4.10.4 After the Contractor obtains a waiver from UNICOR, furniture selections may then be selected from GSA Federal Supply Schedules. Note: A waiver shall be obtained for all furniture items requiring a waiver from UNICOR.

4.10.5 Maximum order of Limitation (MOL) - In accordance with FAR 8.404 (b) (3) orders will no longer be restricted by the MOL. Once the order amount exceeds the MOL listed on the Federal Supply Schedule Contract, customers shall seek a price reduction from the schedule (FSSC) contractor to provide a price that will provide the best value. (Considering price and other factors)

4.10.6 Procurement/Installation - It is the responsible of the Contractor to: Be responsible for all furniture/furnishings design, selection, and coordination with furniture vendors. Provide furniture schedule indicating purchaser, product, etc. It is the responsibility of the Contractor to provide necessary preparation, i.e. electrical systems for all furniture.

4.10.7 It is the responsibility of the government if Option No. 2 is not exercised to purchase, receive, warehouse, and install furniture/furnishings.

4.10.8 Cost Estimate - Itemized
Cost Estimate - Itemized list of furniture/furnishings with amounts, unit cost, and subtotal cost for that item. The total cost for furniture package shall include the price of the furniture items, delivery/shipping costs, and installation.

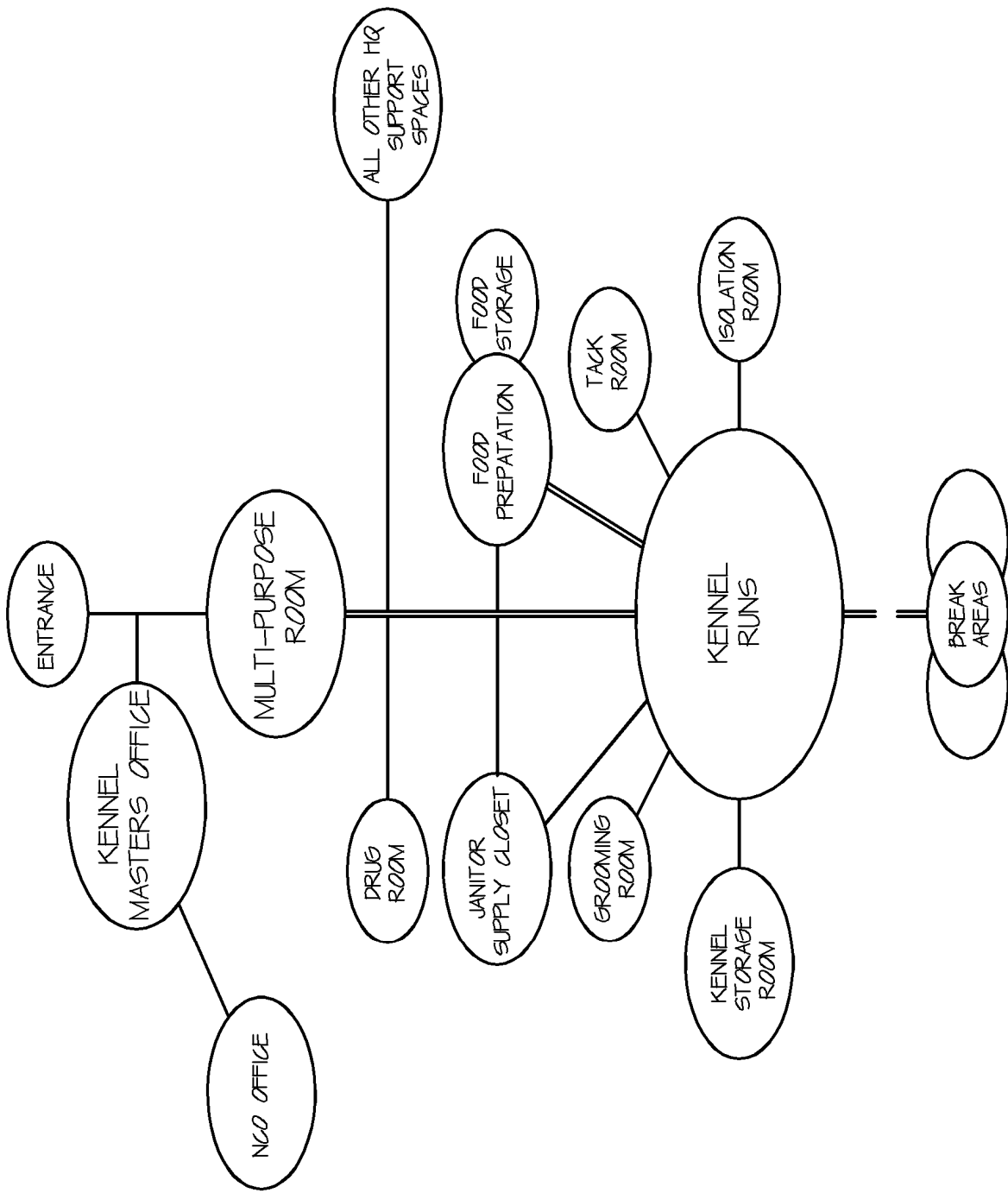


DIAGRAM SHOWING MAJOR ADJACENCIES AND ORGANIZATIONAL STRUCTURE

DATE	PROJECT	DRAWING NAME	PROJECT NUMBER	SHEET
3 JAN 03	FORT BELVOIR, VIRGINIA K-9 KENNEL	DIAGRAM	57530	At 1

ATTACHMENT 2

FURNITURE QUALITY REQUIREMENTS

1.0 GENERAL CONSIDERATIONS

1.1 The requirements and recommendations listed within this attachment are directed at freestanding furniture, furnishings and accessories.

1.2 Furniture will be specified to support the varied tasks, business to be accomplished within this facility. Important considerations include warranties and service, user-friendly features such as radius edges and the smoothly finished underside of surfaces as well as quality of construction and materials. Other Important features include those that prevent the abuse of the furniture inflicted by maintenance crews, lack of maintenance or merely wear and tear over time, All edges must be rounded, no sharp edges or corners will be accepted.

1.3 All applicable industry standards and test requirements shall be met. Materials shall be fire retardant to the maximum extent possible. For example, large trash receptacles and individual wastebaskets can be specified to be fire retardant. U.L. listings shall be met where applicable. Materials shall be fire retardant to the maximum extent possible.

1.4 Layout of furniture shall comply with NFPA 101, and Fed Std. 795.

1.5 Construction quality, materials, finishes and colors shall be compatible with other furniture as well as the building interiors.

1.6 Colors and finishes shall be selected based on durability, maintenance, life cycle costs, requirements, appearance and functional considerations. Use variegated finishes and patterns to the maximum extent possible as solids show wear and tear. Integral color and color through shall also be specified where applicable. Factory applied epoxy or powder coat finishes are recommended for metal frames.

1.7 Warranties and service are important considerations when evaluating furniture sources. Warranties shall be in the range of 5 - 10 years with exception of fabric, task lights and pneumatic parts. Upholstery is typically warranted for 1 year, task lights for 2 years and pneumatic lifts for five years. Local service within a reasonable radius shall support warranties and installation requirements.

1.8 Recommend specifying one manufacturer for "series" or type of furniture, to the maximum extent possible. This helps with ease of maintenance, inventory, and control and encourages continuity through out the facility.

1.9 When wood construction is used, construction shall consist of solid wood banding and frame. Particleboard construction is generally not recommended if other choices are available. Steel frames shall be used in end panel construction of desks and computers.

1.10 Features shall be specified to avoid abuse of furniture inflicted by maintenance crews with such items as vacuum cleaners or neglect of maintenance.

User-friendly features shall be specified such as radius edges. No sharp edges of exposed connections are acceptable. Clips, screws etc construction elements shall be concealed and not exposed.

2.0 Chairs and Seating

2.1 Must meet or exceed all ANSI/BIFMA durability standards -for office seating and upholstered furniture where applicable. Fire retardant urethane foam shall be used to the maximum extent possible.

- a. ANSI/BIFMA X5.1 1993 Office Furniture General Purpose Office Chairs
- b. ANSI/BIFM-A X5.4 1990 Office Furniture Lounge Seating
- c. ANSI/BIFMA X5.7 1991 Upholstered Furniture Flammability Standards for Non-Residential, Non Live-In Occupancies

2.2 Family of chairs and seating shall be specified to the maximum extent possible for continuity and flexibility through out the facility. Chair series shall offer a variety of options, fabrics and caster choices to meet functional requirements. Five (5) star base must be specified with castered chairs. Electrostatic discharge (ESD) properties shall be considered.

2.3 Arms shall have impact resistant edge. Task chair arms shall be recessed.

2.4 Seats shall have waterfall edge.

2.5 Replacement, retrofitting and or reupholstering in the field shall be a criteria consideration, especially with lounge type seating.

2.6 Upholstery shall meet the following as minimums:

- a. Wyzenbeek Abrasion Test: 35,000 double rubs. 50,000 double rubs preferred.
- b. AATCC Method 16A Light Fastness: 40 hours
- c. State of California Bulletin #117: pass
- d. ASTM E 84, Class A: meet
- e. UFAC Class 1: meet

2.7 It is recommended that upholstery and components shall meet the following as applicable:

- a. With appropriate components in appropriate spaces: California Bulletin #133 (full component test)
- b. Soil Retardant Treatment - topical or inherent
- c. Heavy Duty

3.0 Desks, ADP/Modular Workstations

3.1 Products shall comply with:

- a. BIFMA X 5.5 1989 Office Furnishings - Desk Products
- b. UL 1286 office Furnishings

3.2 Drawers shall have either a cradle type of full extension ball bearing suspension with hanging file folder frames or compressor dividers. Drawers shall stay securely closed and not open when in the closed position. Each drawer shall contain a safety catch to prevent accidental removal when drawer is fully open. Pedestals shall be designed to protect wires from being damaged by drawer operation when wire management runs behind or along the side of the drawers. Box drawers shall be provided with pencil trays and/or stationary trays as is appropriate.

3.3 Any overhead storage shall be able to accommodate task lighting. Depth of overhead storage shall be typical to accommodate a standard three ring binder. As needed, 15-inch depth overhead storage shall be provided to accommodate computer printouts. The shelf/storage pan shall be of metal construction with formed edges. Supporting end panels shall provide metal-to-metal connections to the supporting panels.

3.4 Task lighting shall not extend beyond the edges of the overhead storage unit. Fixtures shall be UL approved. Uses energy efficient ballasts and lamps. All diffusers, grilles or other coverings shall be easily removable to permit cleaning and re-lamping. A variable intensity control is preferred.

3.5 One work surface per ADP/Modular workstation or desk shall be capable of accommodating an articulating keyboard. The articulating keyboard shall have the capability to be fully recessed under the work surface and extend to give the user full access to the keyboard. Side travel rotation shall be a 180-degree swing. The keyboard pad shall have tilting capability and shall contain a wrist support.

3.6 Work surfaces shall not be affected by ordinary household solvents, acids alcohols or salt solutions and shall be capable of being cleaned with ordinary household cleaning solutions. Edges shall be post formed, vinyl molding or equal-self edge 90 degree edge not acceptable.

3.7 Tack boards shall be specified as necessary.

3.8 Wire management and accessories shall be specified at all desks, ADP/modular workstations. Grommet kits or another suitable finish must be provided for all cable cutouts. Horizontal wire managers shall be supplied for mounting under all work surfaces or be integral in work surface. Wire managers shall be pre-finished and shall secure, conceal and accommodate outlet cords as well as electrical and communication wiring.

3.9 Leveling glides shall be a feature.

4.0 TABLES

4.1 Underside of tables or work surfaces to be completely and smoothly finished. Apron edges are strongly discouraged.

4.2 When a laminate edge is specified, it shall be a post-formed edge, straight or 90 degree self edge tables are unacceptable.

4.3 Leveling glides or leveling device shall be a feature.

4.4 Rectangular tables to have "T" type base rather than 4 legs. If folding tables are specified, folding mechanism and legs, when folded, are to be flush with 1-io of the table.

5.0 STORAGE

5.1 Shelving to hold weight as specified by Users. Additional accessories such as bins shall be specified as needed.

5.2 Lateral file must meet the following:

- a. Federal Specification AA-CC-1779D for heavy-duty filing
- b. ANSI/BIFMA x 5.2 1989

5.3 If used, vertical file must meet ANSI/BTFMA standards X 5.3 1989

5.4 Leveling glides shall be a feature of files and any type of storage cabinet.

5.5 Adjustable shelving shall be incorporated into storage units to the maximum extent possible.

CHAPTER 5

STRUCTURAL

5.0 STRUCTURAL DESIGN

5.1 STRUCTURAL CRITERIA

The structural criteria established herein shall be used for structural loading, design and installation of all structural systems and foundations, including manufacturing, erection, supervision, testing, and quality assurance of the completed installation of the buildings. All structural calculations shall be checked and initialed as such by a registered professional engineer other than the original design engineer. Drawings and calculations shall be stamped by a registered professional engineer. All references contained herein to minimum requirements shall not be construed to mean that no additional calculations are required. If the structural design requires more than the minimum requirements, then the structural design shall govern. The structural work generally consists of design, using the DESIGN CRITERIA and DESIGN LOAD CRITERIA below, and construction of but not limited to:

- a. Foundations.
- b. Load bearing and non-load bearing walls.
- c. Vertical framing members.
- d. Horizontal framing members, including roof decks and diaphragms, roof beams, joists and trusses.
- e. Interconnection details including all fastening requirements.
- f. Special conditions, such as expansion, construction, and control joints.
- g. Attachment provisions for architectural, mechanical, and electrical elements.
- h. Site fencing structure and foundations.
- i. Retaining walls.
- j. Mechanical/Electrical equipment concrete pad.

5.2 DESIGN CRITERIA

Design shall meet the latest edition of the following criteria.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 318 Building Code Requirements for Reinforced Concrete
ACI 302 Guide for Concrete Floors and Slab Construction

AMERICAN FOREST & PAPER ASSOCIATION

AF&PA T01 National Design Specifications for Wood Construction (and
supplements)

AF&PA T11 Manual for Wood Frame Construction

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

Manual of Steel Construction, 9th edition
Manual of Steel Construction, LRFD

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7 Minimum Design Loads for Buildings and Other Structures

PS-1 Construction and Industrial Plywood

AMERICAN WELDING SOCIETY

Welding Handbook

UNIFIED FACILITIES CRITERIA

UFC1-200-1 Unified Facilities Criteria (UFC),
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

ARMY TECHNICAL INSTRUCTIONS,
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

TI 809-02 Structural Design Criteria for Buildings

TI 809-04 Seismic Design for Buildings

ARMY TECHNICAL MANUALS,
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

TM 5-853-1 Security Engineering Project Development

TM 5-853-2 Security Engineering Concept Design

TM 5-853-3 Security Engineering Final Design

TM 5-855-1 Design & Analysis of Hardened Structures to
Conventional Weapons Effects

TM 5-1300 Structures to Resist the Effects of Accidental Explosions

DEPARTMENT OF DEFENSE

Department of Defense Interim Antiterrorism Construction Standards

5.3 DESIGN LOAD CRITERIA

Minimum roof live load:	20 psf (no reduction)
Dead load:	Actual
Ground snow load:	25 psf
Wind speed:	90 mph
Floor live load:	In accordance with ASCE 7 or the User's request (whichever is greater)
Frost penetration	26 inches
Category	I
Importance factor	I = 1.0
Seismic factors	Ss=0.19, S1=0.062

5.4 FOUNDATIONS

A geotechnical report is attached and provides information on the soil conditions at the project site. The report provides information for bidding purposes only. The final geotechnical design analysis for the foundations is the responsibility of the design/build contractor. The contractor is responsible for performing additional exploration and testing as necessary to support his design of the foundation system. The geotechnical design must be performed by a geotechnical engineer in accordance with good geotechnical practice and shall provide an adequate level of protection against general shear failure of the foundation or excessive total and/or differential

foundation settlement. Refer to the geotechnical report for additional requirements.

5.5 SEISMIC DESIGN

Seismic design shall be in accordance with Army Technical Instructions, TI 809-04, Seismic Design for Buildings. This document references NEHRP provisions for the determination of site-specific seismic accelerations and prescribes the method of design force derivation.

5.6 LATERAL RESISTANCE

Walls, when used or required for lateral resistance to wind or earthquake, shall be considered bearing walls and shall have full foundations.

5.7 FORCE PROTECTION

5.7.1 Force protection design shall be in accordance with TM 5-853-1, TM 5-853-2, TM 5-853-3, and the Interim Department of Defense Interim Antiterrorism/Force Protection Construction Standards.

5.8 SELECTION OF STRUCTURAL SYSTEM

5.8.1 The overall structural system shall be selected based on durability, maintainability, cost effectiveness, and flexibility for future renovation.

5.9 GENERAL DESIGN CRITERIA

5.9.1 The design drawings shall contain in the General Notes a list of the design loading criteria, a list of the strengths of the engineering materials used, the design soil values and any other data that would be pertinent to remodeling and/or future additions.

5.9.2 Walls mostly below grade that are supported laterally by diaphragms at or near the top and bottom, shall be designed using loading based on at rest soil pressures. All masonry walls below grade (below first floor finish floor) shall be solid grouted construction.

5.9.3 Diaphragms shall have continuous chord members on all edges and shall have direct positive connection for transferring load to all members of the main lateral force resisting system.

5.10 CONCRETE DESIGN

5.10.1 The minimum concrete strength shall have at least a compressive strength of 3000 psi at 28 days.

5.10.2 Concrete Materials shall conform to the following:

- a. Cement: ASTM C 150, Type I-II Portland cement.
- b. Fine Aggregate: ASTM C 33.
- c. Coarse Aggregate: ASTM C 33.
- d. Air-Entraining Admixture: ASTM C 260.
- e. Flowing Concrete Admixture: ASTM C 1017, Type 1 or 2.
- f. Fly Ash: ASTM C 618, Class F.
- g. Calcium Chloride will not be permitted.

5.10.3 Ready-Mix Concrete shall conform to ASTM C 94.

5.10.4 Slabs-on-Grade

5.10.4.1 Concrete floor slabs shall be floating slab on grade. Slabs supported on grade will be a minimum thickness of 4 inches and shall contain a minimum of 0.1 percent welded wire mesh reinforcement in each direction placed at 1½" from the top of the slab.

5.10.4.2 Horizontal runs of conduits and pipes will not be embedded in slabs supported by ground. Vertical penetrations will conform to ACI 318. Aluminum conduit and pipes will not be embedded in any concrete structure.

5.10.4.3 Refer to TI 809-02, Chapter 5, for additional slab-on-grade requirements.

5.11 MASONRY DESIGN

5.11.1 Masonry construction shall conform to UFC 1-200-1.

5.11.2 All mortar used on this project shall be type "S" mortar.

5.11.3 Installation of brickwork shall comply with the latest edition of the Brick Institute of America Technical Notes No. 28; Brick Veneer, New Construction.

5.11.4 Concrete masonry units shall have a minimum compressive strength of 2000 psi on net area (1000 psi on gross area) at 28 days.

5.11.5 Unreinforced masonry construction shall not be allowed.

5.12 LIGHT GAGE STEEL TRUSSES

TI 809-07, Design of Cold-Formed Loadbearing Steel Systems and Masonry Veneer/Steel Stud Walls addresses prescriptive design for cold-formed metal roof trusses, indicating that member specific design and detailing is required for each truss configuration proposed, and requiring that complete design documentation be provided for each truss type/configuration specified, including member properties, material strengths, connection details, etc.

CHAPTER 6 ELECTRICAL

6.0 ELECTRICAL

6.1 Demolition

Demolition of the existing electric, communications and fire protection systems is a part of this contract. The three pole mounted power transformers are presumed to contain PCB's and proper disposition is the responsibility of the contractor. All other equipment such as panelboards, motors, fire alarm components, communication equipment and associated wiring or wiring devices shall be carefully removed and collected for inspection by Base personnel. Items deemed to be of value to the government shall be turned over to the Base and the balance shall be removed from the site by the contractor.

6.2 GENERAL REQUIREMENTS

6.2.1 Design Standards

Design and installation of electrical, and other systems listed herein, for the facility shall comply with the applicable requirements of the latest following standards listed in the reference standards paragraphs of this proposal:

- a. MIL-HDBK-1190, Facility Planning and Design Guide
- b. MIL-HDBK-1008C, Fire Protection for Facilities Engineering, Design, and Construction
- c. NFPA 70, National Electrical Code
- d. NFPA 101, Code for Safety to Life from Fire in Building and Structures
- e. NFPA 70E, Standard for Electrical Safety Requirements for Employee Workplaces
- f. TM 5-811-1, Electrical Power Supply and Distribution
- g. TM 5-811-2, Electrical Design, Interior Electrical Systems
- h. TM 5-811-3, Electrical Design, Lightning and Static Electricity Protection
- i. TM 5-811-7, Electrical Design, Cathodic Protection
- j. TI 800-01, Design Criteria
- k. Illuminating Engineering Society Application and Reference Handbooks
- l. Insulated Power Cable Engineers Association Standards
- m. National Electrical Manufacturer's Association Standards
- n. Underwriters' Laboratories Inc. Standards

- o. American National Standards Institute Standards
- p. Americans with Disabilities Act
- q. American Society for Testing and Materials Standards
- r. Telecommunications Industry Association/Electronic Industries Association Standards
- s. TIA/EIA 568-A, Cabling Standard
- t. TIA/EIA 569, Telecommunications Pathways and Spaces
- u. TIA/EIA 606, Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- v. TIA/EIA 607, Commercial Building Grounding and Bonding Requirements for Telecommunications
- w. EIA TSB 67, Cable Testing Procedures
- x. Insulated Cable Engineers Association Standards
- y. ICEA S-80-576, Communications Wire and Cable for Premises Wiring
- z. ICEA S-83-596, Fiber Optic Premises Distribution Cable
- aa. I3A - Design and Implementation Guide

6.2.2 PCB Standards

All new electrical equipment shall be supplied with no detectable PCB's. New fluorescent lighting fixture ballasts shall be clearly marked "NO PCB". Certified PCB tests from an independent laboratory with the serial number of test results on the unit, shall be obtained by the Contractor.

6.2.3 Corrosion Control

Provide cathodic protection for any buried/submerged metallic utility system (piping or tanks). A soil resistivity test shall be conducted. The cathodic protection survey and design must be performed by a National Association of Corrosion Engineers (NACE) Accredited Corrosion Specialist, NACE Certified Cathodic Protection Specialist, or a Registered Professional Corrosion Engineer. This accreditation and/or registration must have been obtained in the field of cathodic protection. Cathodic protection system shall be in accordance with NACE RP-01-69, NACE RP-01, TM 5-811-7, and ETL 1110-3-474. Design anodes for a 20 year life minimum.

6.2.4 Seismic Protection

The electrical equipment and systems listed below shall be seismically protected:

Control Panels	Air Handling Units
Pumps with Motors	Power Panels
Light Fixtures	Transformers
Storage Racks	

6.3 POWER AND LIGHTING REQUIREMENTS

6.3.1 Tie-In

The replacement of overhead/aerial distribution and the installation of the primary conductors and service transformer will be accomplished by Washington Electric & Gas Public Utility under another contract in conjunction with this project. The Contractor shall coordinate with the utility company by providing design facility information necessary to size and locate the service transformer. Transformer will be installed (by W E & G) on a concrete pad provided by this project, and be located in accordance with MIL-HDBK-1008C. Transformer pad design shall be in accordance with W. E. & G requirements and the government's standard pad and grounding installation details (See attached sketch E1 of standard pad and grounding details). Contractor shall provide concrete encased underground secondary service feeder from the secondary section of the pad-mounted transformer (Pri: 34.5KV Sec: 240/120 Volt single phase if demand load is 50KVA or less. 208/120v three phase if above 50KVA) 30 feet from the building, to the distribution panel.

6.3.2 Secondary Distribution

Demand load calculations shall be based on 2.5 watts/square foot for interior lighting, 1.0 watts/square foot for receptacles, and 0.1 watts/square foot for exterior area lighting. Electrical distribution system shall be designed to have a minimum 25 percent spare capacity for all loads, including circuit breaker expansion capability in all panelboards. If 208v three phase service is provided use three phase power for mechanical equipment and motor loads of ½ HP and larger, 208Y/120V 3Ph 4W distribution inside the facility. If single phase power is used, a three wire system shall be provided. All circuits are to have individual 100% neutrals and a separate grounding conductor. Protection against external/internal generated transient surge voltage spikes shall be provided by a Transient Voltage Surge Suppression (TVSS) unit.

6.3.3 Equipment Interrupting Capacity

Perform short circuit calculations to determine fault current available at service switchboard equipment, panelboards, motor control centers, safety switches, and enclosed circuit breakers. Provide equipment with sufficient short circuit interrupting capacity to withstand calculated fault current levels.

6.3.4 Interior Power Distribution

Electrical distribution panelboards shall be of the circuit breaker type. Voltage drop shall be limited to 3% for branch circuits, 1% for feeders, and 2% for service entrance conductors, with a 5% overall voltage drop limitation. Tapping of service entrance conductors and feeders will not be allowed.

6.3.4.1 Motors

Motors greater than 1/2-horsepower (HP) shall be provided in 3-phase configuration (if available) with phase failure relay protection. Power factor correction capacitor(s) shall be provided for motors larger than 3HP. Motors efficiencies shall be as specified in the table "MINIMUM NOMINAL EFFICIENCIES" below.

MINIMUM NOMINAL MOTOR EFFICIENCIES
OPEN DRIP PROOF MOTORS

<u>HP</u>	<u>1200 RPM</u>	<u>1800 RPM</u>	<u>3600 RPM</u>
1	82.5	85.5	80.0

1.5	86.5	86.5	85.5
2	87.5	86.5	86.5
3	89.5	89.5	86.5
5	89.5	89.5	89.5
7.5	91.7	91.0	89.5
10	91.7	91.7	90.2
15	92.4	93.0	91.0
20	92.4	93.0	92.4
25	93.0	93.6	93.0
30	93.6	93.6	93.0
40	94.1	94.1	93.6
50	94.1	94.5	93.6
60	95.0	95.0	94.1
75	95.0	95.0	94.5
100	95.0	95.4	94.5
125	95.4	95.4	95.0
150	95.8	95.8	95.4
200	95.4	95.8	95.4
250	95.4	96.2	95.8

6.3.4.2 Transformers

Transformers shall have 220 degrees C insulation system for transformers 15 kVA and greater, and shall have 180 degrees C insulation with temperature rise not exceeding 150 degrees C under full-rated load in maximum ambient temperature of 40 degrees C.

6.3.4.3 Cables and Wires

Conductors No. 8 AWG and larger diameter shall be stranded. Conductors No. 10 AWG and smaller diameter shall be solid, except that conductors for remote control, alarm, and signal circuits, classes 1 (No. 14 AWG, Nom), 2 (No. 16 AWG, Nom), and 3 (No. 22 AWG, Nom), shall be stranded. All conductors shall be copper, 12 awg minimum for power and 18 awg for communications. Aluminum conductors are not acceptable.

6.3.4.4 Conduits and Tubing System

Minimum size of raceways shall be 3/4 inch. Electrical metallic tubing (EMT) may be installed only within the building. EMT may be installed in concrete and grout in dry locations. EMT installed in concrete or grout shall be provided with concrete tight fittings. EMT shall not be installed in damp or wet locations, or the air space of exterior masonry cavity walls. Aluminum conduit may be used only where installed exposed in dry locations. Penetrations of above grade floor slabs, time-rated partitions and fire walls shall be firestopped. IMC may be used as an option for rigid steel conduit. Raceways shall be kept 6 inches away from parallel runs of flues, steam pipes and hot-water pipes.

6.3.4.4.1 Raceways shall be concealed within finished walls, ceilings, and floors. Raceways crossing structural expansion joints or seismic joints shall be provided with suitable expansion fittings or other suitable means to compensate for the building expansion and contraction and to provide for continuity of grounding. Conduit installed in slabs-on-grade shall be rigid steel or IMC. Changes in direction of runs shall be made with symmetrical bends or cast-metal fittings. Metallic conduits and tubing, and the support system to which they are attached, shall be securely and rigidly fastened in

place to prevent vertical and horizontal movement. Exposed raceways shall be installed parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings.

6.3.4.5 Circuit Breakers

Circuit breakers shall be installed in panelboards, switchboards, enclosures, motor control centers, or combination motor controllers. Circuit breakers shall be fully rated type.

6.3.4.5.1 Circuit breakers rated 15 amperes and intended to switch 240 volts or less fluorescent lighting loads shall be marked "SWD."

6.3.4.5.2 Circuit breakers 60 amperes or below, 240 volts, 1-pole or 2-pole, intended to protect multi-motor and combination-load installations involved in heating, air conditioning, and refrigerating equipment shall be marked "Listed HACR Type."

6.3.4.6 Receptacles

Non-linear loads in administrative areas and offices, shall be furnished with NEMA 5-20R duplex receptacles. Each circuit shall be provided with an insulated ground and a dedicated neutral conductor. Convenience receptacles in administrative areas shall be provided at 10 feet on centers along perimeter walls and within 5 feet from doors. Outlets along perimeter wall of corridors, lobby, and circulation areas for use of janitorial or other equipment, shall be installed at 30 feet (max) on centers. Where counters are provided in rooms, receptacles shall be provided above the counter top back splash at 18 inches from counter-ends. Outlets to motor driven office equipment (printers, shredders, fax machines, etc) shall be connected to power sources not supporting sensitive electronic equipment. In the kitchenette and staff lounge counter tops and island-type counter tops, the minimum number of receptacles and small appliance branch circuits as required by NFPA 70 Article 210-52(b)(2) and (c), shall be provided, except that the countertop small appliance circuits shall not be limited to two and the circuits shall be dedicated to just the kitchen area. At least one receptacle shall be provided in storage rooms, janitor closets, and bathrooms. In bathrooms, one additional receptacle shall be provided above the countertop back splash and adjacent to each basin area. Bathroom receptacle outlets shall be supplied by at least one 20-ampere branch circuit. All receptacles (inside and out) will be 20 ampere all weather type with a spring cover.

6.3.4.6.1 Ground-fault circuit-interrupter (GFCI) receptacles shall be provided where receptacles are located within 6 feet of sinks such as in the toilets, janitor's closets and other wet areas. Weatherproof GFCI receptacles shall be provided outside the mechanical room and 6 feet from the nearest outside mechanical equipment. Receptacles circuits in areas to be washed down or subject to spraying will be provided with ground fault circuit interrupters. Dedicated receptacle outlets shall be provided at the telephone backboard.

6.3.4.6.2 Maximum of six convenience receptacles shall be circuited to a 20-ampere branch circuit. Each administrative area workstation shall be circuited to a 20-ampere branch circuit. In accordance with UBC 4304, outlets in the same stud space and on opposite sides of fire rated walls or partitions must be separated by a minimum of 2 feet horizontal distance. Device face plates inside the building shall be nylon impact resistant type and ivory colored.

6.3.5 Lighting

6.3.5.1 Interior Lighting

Lighting intensity levels in general shall be provided in accordance with DOD 4270.1-M and IES Lighting Handbook. The majority of rooms shall be provided with recessed fluorescent fixtures equipped with energy saving 4 foot, 32-watt T8 lamps and energy efficient electronic ballasts. Parabolic fluorescent fixtures shall be provided for office and administration area and other areas with computer monitors. General occupancy areas shall be provided with prismatic troffers, and mechanical/electrical room or similar spaces shall be provided with industrial grade fluorescent luminaires. Open type fluorescent luminaires shall be provided with tube guards. Training room 4 foot lighting system shall be provided with dimmable compact fluorescent fixtures. Showers shall be provided with wet listed lighting fixtures, and bathroom areas with damp listed luminaires. Design footcandle levels and other lighting requirements shall be provided according to Table 3-6 in AFP 88-38 as shown below:

<u>Space</u>	<u>Footcandle Level</u>	<u>Multiple Switching</u>	<u>Dimming Capability</u>
Kennel Area	10	yes	no
Corridors	20	yes	no
Isolation Rm.	70	no	yes
Multipurpose/ Admin/ Staff	70	yes	no
Toilets	30	no	no
Storage	20	no	no
Closets	20	no	no
Mech/Elec	20	no	no
Outdoors	0.5	auto with manual override	--

Each room lighting system shall be switched locally. Multi egressed/accessed areas will be provided with three-way/four-way switching accordingly. Devices wall mounted in accordance with the ADA applicable standards. The minimum rating of all switching devices shall be 20 ampere. 15 ampere devices are not acceptable.

6.3.5.2 Exterior Lighting

Perimeter and parking area lighting shall be provided with High Pressure Sodium (HPS) fixtures. Parking lot luminaires shall be mounted on 30' aluminum poles cast-in-place, reinforced concrete foundation. All exterior light fixtures shall be controlled by combination photocell/time clocks. The existing exterior lights may be supplemented or replaced entirely. The lights beyond the work site that are currently supplied from the transformers in the existing kennel area are to remain and be supplied from the new installation.

6.3.5.3 Exit and Emergency Lighting

Egress, exit and emergency lighting shall be provided. Exit and emergency lighting shall be provided with self contained emergency backup units. Red LED type exit lighting shall be provided. Night lighting shall be provided in general purpose area. Exit signs, emergency lights and night lights shall be connected to a section of the source panel supported by the portable generator outlet outside of the electrical/mechanical room.

6.3.6 Emergency Power

Emergency standby generator is not required and shall not be provided. A disconnect switch to connect a mobile 10-KW portable generator shall be provided on the outside of the mechanical/electrical room. The disconnect switch shall be connected to a manual transfer switch (MTS) that serves a panelboard or section of the panelboard (Split Bus) dedicated to emergency building loads like the illuminated exit signs, emergency lights, fire alarm system, the public address (PA) system and the intrusion detection system (IDS), etc.

6.4 DATA/COMMUNICATIONS

6.4.1 Scope

Contractor shall provide premises distribution system consisting of inside-plant horizontal cables and connecting hardware to transport telephone and data (including LAN) signals between equipment in the building. The Government will provide the jumper wire between the 110 connector blocks and the incoming 50-pair telephone cable and tie-in at the manhole.

6.4.1.1 Building Communication Requirements

6.4.2.1 Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that has been in satisfactory use for at least 1 year prior to installation. Materials and equipment shall conform to respective publications of Telecommunications Industry Association/Electronic Industries Association TIA/EIA 568-A, TIA/EIA 569, TIA/EIA 607, EIA TSB 67, Insulated Cable Engineers Association ICEA S-80-576, and ICEA S-83-596, and other requirements specified below and to the applicable requirements of NFPA 70.

6.4.2.2 Coordinate with the local Director of Information Management (DOIM) or equivalent personnel to determine existing telecommunication capability and whether or not the existing facilities will need to be upgraded to support any new telecommunications equipment and distribution systems associated with this project. Involve the DOIM during the design process. Contractor shall coordinate communication requirements with Mr. Mike Groeneveld (703) 806-0045.

6.4.3 Installer Qualifications

Installer shall have a minimum of three years experience in the application, installation, and testing of communications system and equipment, including the installation of copper and fiber optic cable and components.

6.4.4 Inside Plant

Telephone and Local Area Network (LAN) systems shall be pre-wired in accordance with ETL 1110-3-502 to include at the typical duplex communications outlet two 8-pin RJ-45 voice/data jacks. One RJ-45 jack shall be for Voice (upper) and the other RJ-45 jack will be for data (lower). Wiring to each RJ45 jacks shall consist of Category 6e UTP cables. All RJ45 jacks, 110 blocks and UTP horizontal cable shall be Category 6e. Wall-mounted outlets shall be wired by running conduit overhead and down to the outlets. UTP voice and data cables shall be terminated on 110 connector blocks mounted on plywood backboards (TTB's) in the electrical/mechanical room.

6.4.5 Outside Plant

The outside plant telephone cable shall be brought into the TTB of this facility in a new 4 inch ductbank system that shall be run from the existing 300 pair of copper telephone cable in a communications manhole at 16th and Theote Streets. Three 4 inch ducts (1-telephone, 1- fiber optic and 1-spare) shall be brought up to the TTB in the electrical/mechanical room (See attached sketch E2 for installation requirements). A fifty (50) twisted pair 24 AWG copper cable shall be provided for telephone and a fifty (50) twisted pair 24 AWG copper cable shall be provided for data. Fiber optic LAN/WAN cable service can be obtained 3000 feet from the project site at Building 193, intersection of 16th Street and Gunston Road. Twelve strands of single mode fiber optic cable shall be installed from the manhole to the new building. Telephone and data cables will be connected to the existing telephone and data cables in the manhole by the Government. Handholes/manholes shall be included as required to facilitate wire pulling and to avoid over-tensioning of cable during installation. No less than five (5) manholes shall be provided.

6.4.6 Quantities

Number of data/comm outlets shall be in accordance with the table shown below.

<u>Area Description</u>	<u>No. of jacks</u>
Kennel Master Office	2
Handlers Work Station	1 (Each)
Multipurpose Room	2

6.5 GROUNDING

6.5.1 A Lightning protection system is not required and shall not be provided.

6.5.2 An insulated green grounding conductor shall be installed to each receptacle. Grounding shall be provided as specified NFPA 70 for grounding panels, transformers, separately derived systems and telephone terminal backboards. All ground rods which include the service entrance panelboard, Telephone Terminal Backboard, the fire alarm transceiver, and the pad-mounted transformer shall be bonded below grade to a 4/0 bare copper counterpoise (See standard transformer pad grounding detail). Telecommunications backboards shall be grounded with a dedicated direct buried PVC duct and cable bonded to the pad mounted transformer power grounding electrode system, in compliance with TIA/EIA 607. The 4/0 counterpoise and earth electrode system shall be designed to obtain a resistance to ground of 25 ohms or less.

6.6 INTRUSION DETECTION SYSTEM

An IDS shall be installed to monitor the building and the indoor arms room separately. Audible warning device (different from fire alarm system) shall be provided at each exterior door. The remote station shall have an integral video camera. The master station shall have an integral TV monitor and handset. The alarm signal shall be transmitted to the local security office. The Contractor shall install conduit and junction boxes for this system. System power, alarm, and signal cable runs shall be installed in raceways. Discuss any requirements for connection to the installation electronic security system. The Contractor shall coordinate IDS requirements with POC Mr. Mike Groeneveld (703) 806-0045.

6.7 ENERGY MONITORING AND CONTROL SYSTEM (EMCS)

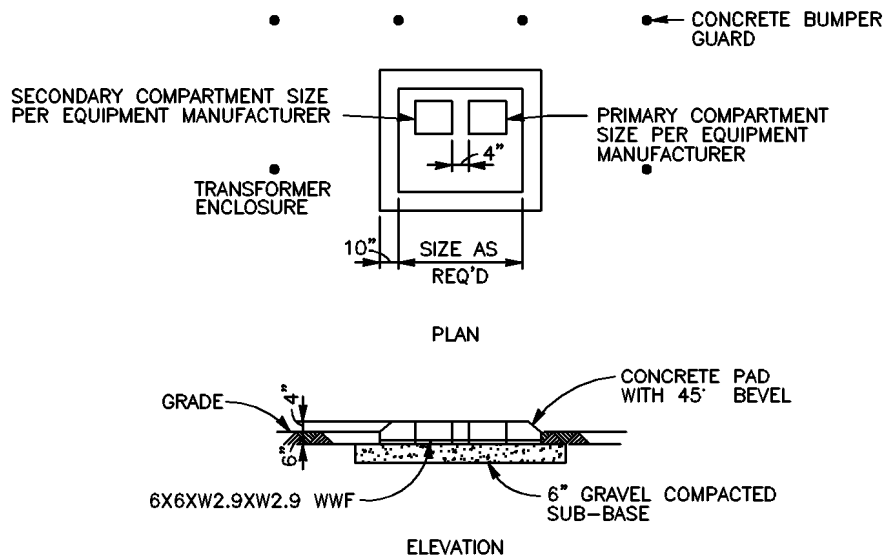
An EMCS is not required for this facility.

6.8 INTERIOR CABLE TELEVISION

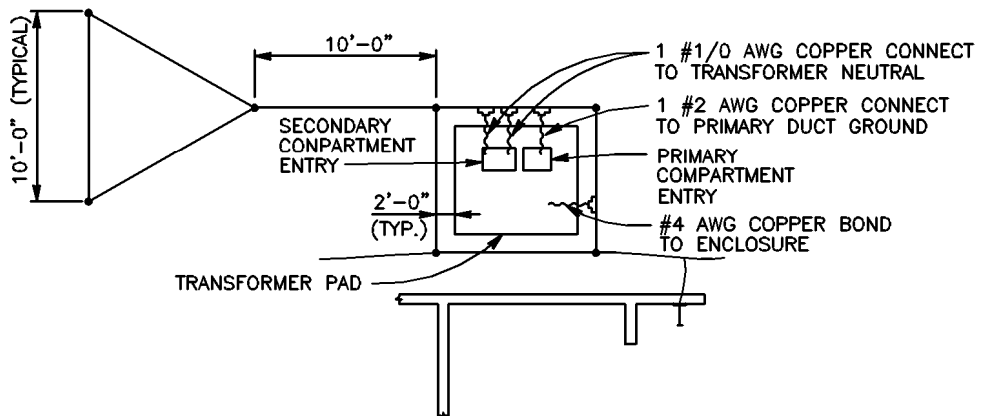
Contractor shall provide cable system premises distribution system (coaxial cable and connecting hardware) to transport television signals to specific end user locations in the building from the patch panel in the electrical/mechanical room. Contractor is responsible for providing the patch panel, wire, conduit and jacks for future use. The kennel masters office and the multipurpose room shall be provided with female connector to accept the connecting coaxial cable from the user's television set. Local agreements for CATV already exist for Fort Belvoir. The Contractor shall coordinate CATV requirements with POC Mr Mike Groeneveld (703) 806-0045.

6.9 CABLE TRAY

Overhead (above ceiling) cable tray is not required for this project.

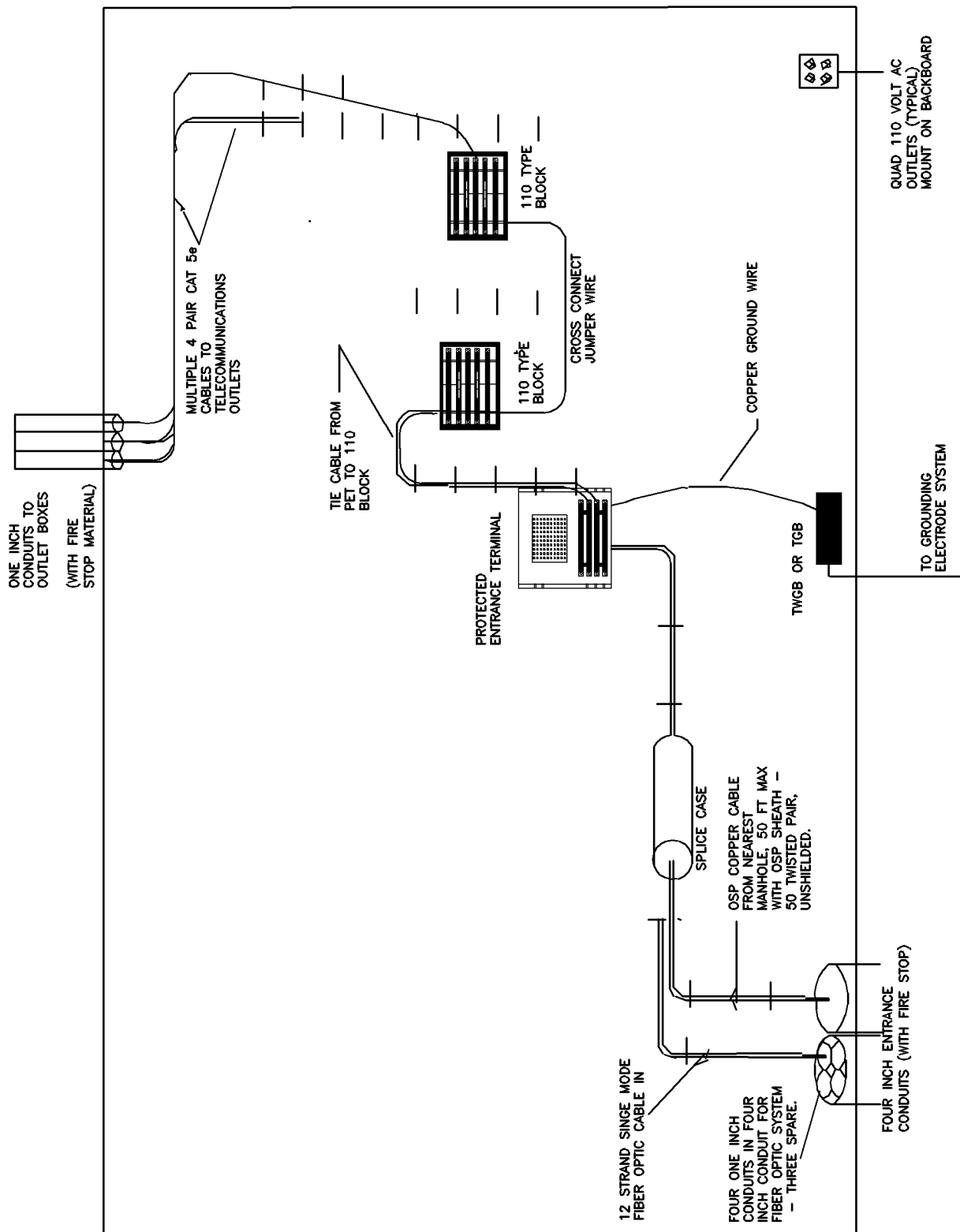


TRANSFORMER PAD DETAIL
N.T.S.



GROUNDING DETAIL AT THE PAD MOUNTED TRANSFORMER
N.T.S.

DATE	PROJECT	DRAWING NAME	PROJECT NUMBER	SHEET
3 JAN 03	FORT BELVOIR, VIRGINIA K-9 KENNEL	STD TRANS. PAD & GROUNDING DETAILS	57530	E1



TELECOMMUNICATIONS DISTRIBUTION DIAGRAM
N.T.S.

DATE	PROJECT	DRAWING NAME	PROJECT NUMBER	SHEET
3 JAN 03	FORT BELVOIR, VIRGINIA K-9 KENNEL	TELE. DIST. DIAGRAM	57530	E2

CHAPTER 7 HVAC

7.0 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

7.1 GENERAL REQUIREMENTS

7.1.1 Design Standards

Heating, ventilation and air conditioning systems shall comply with the latest provisions, unless other indicated, of the following standards and specifications:

- a. TI 800-01, Technical Instructions - Design Criteria
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- b. TI 800-03, Technical Requirements for Design-Build
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- c. TI 809-04, Technical Instructions - Seismic Design for Buildings
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- d. TI 810-10, Mechanical Design - HVAC
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- e. TI 810-11, HVAC Control Systems
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- f. TM 5-785, Weather Data
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- g. TM 5-802-1, Economic Studies
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- h. TM 5-805-4, Noise and Vibration
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- i. AR 190-12, Military Working Dogs
http://www.army.mil/usapa/epubs/190_Series_Collection_1.html
- j. AP 190-12, Military Working Dogs Program
http://www.army.mil/usapa/epubs/190_Series_Collection_1.html
- k. Department of Defense Antiterrorism/Force Protection Construction Standards (with Army Supplemental Guidance) Interim Standards, 16 Dec. 99.
- l. ANSI Standards
- m. ASHRAE Handbooks
- n. ASHRAE Standard 62-99, Ventilation
- o. ASME Standards

- p. ASTM Standards
- q. Ft. Belvoir Installation Design Guidelines
- r. UL Standards
- s. NFPA Standards
- t. NFPA 90A, Air Conditioning and Ventilation Systems
- u. OSHA Safety and Health Standards
- v. SMACNA Manuals and Guides

7.1.2 Equipment

All equipment shall be factory packaged and tested. Use products of one manufacturer where two or more items of the same kind of equipment are required. Equipment efficiencies shall meet the minimum efficiency requirements indicated for 10/29/2001 from ASHRAE 90.1-1999, unless indicated otherwise in this RFP. Roof-mounted equipment, except for exhaust fans, shall not be used for the project.

7.1.3 Year 2000 Compliance

Equipment and materials shall be Year-2000 compliant. Where equipment contains computer based information technology, the equipment shall be certified to be Year-2000 compliant.

7.2 Design Criteria

Outdoor Conditions (Temperatures indicated are dry bulb unless otherwise indicated.)

7.2.1 Heating Season

Design Temperature - 12 degrees F
Design Temperature for Outside Air Coils - -5 degrees F

7.2.2 Cooling Season

Design Temperature - 90 degrees F
Wet Bulb - 75 degrees F

7.2.3 Indoor Heating and Cooling Conditions

7.2.3.1 Kennel Support Area

a. Offices Areas, Multipurpose Room, Food Preparation Room, Veterinary Room and Isolation Room:

Summer - 75 degrees F, 50 percent RH maximum
Winter - 70 degrees F, 30 percent RH minimum (Humidification shall be provided)

b. Mechanical/Electrical Rooms:

Summer - ventilate only, 10 degrees F above ambient
Winter - 55 degrees F

c. Toilet Rooms and Janitor Closet:

Summer - None (Indirect Cooling from adjacent spaces)
Winter - 68 degrees F

d. Food Storage Room, Tack Room, Drug Room, and Storage at Admin Area:

Summer - not to exceed 85 degrees F
Winter - 55 degrees F

e. Corridors:

Summer - 75 degrees F.
Winter - 68 degrees F.

7.2.3.2 Kennel

a. Kennel Runs:

Summer - 75 degrees F, 50 percent RH maximum
Winter - 70 degrees F, 30 percent RH minimum (Humidification shall be provided)

b. Kennel Storage Room

Summer - not to exceed 85 degrees F
Winter - 55 degrees F

7.2.4 Ventilation

7.2.4.1 General

The following definitions apply: recirculated air is room air that can be returned for reuse. Non-recirculated air is room air that cannot be returned for reuse. All areas located on the exterior wall shall be provided with positive pressure to prevent infiltration. All areas except toilet rooms, janitors closet, isolation room and kennel runs shall have recirculated air.

7.2.4.2 Minimum outside air quantities

a. Offices Areas, Multipurpose Room, Food Preparation Room, Veterinary Room and Isolation Room: - 20 cfm per occupant

b. Mechanical/Electrical Room - No outside air requirements, except for ventilation

c. Toilet Rooms - 50 cfm per water closet, air exhausted through toilet rooms to be made up from adjacent space.

d. Janitor closet - 50 cfm

e. Food Storage Room, Tack Room, Drug Room, and Storage at Admin Area - 0.15 cfm per square foot

f. Corridors - 0.1 cfm per square foot

g. Isolation Room, Kennel Runs - 6 air changes per hour, 100 percent outdoor air.

7.2.5 Filtration of Circulated Air

7.2.5.1 General

Dry type filtration of air is to be used. The percent efficiency refers to ASHRAE Dust Spot Method of rating filters.

7.2.5.2 Offices and other areas served by AHUs. - 25 percent efficient prefilter(s) and 85 percent efficient final filter(s) as determined by the dust spot standard specified in ASHRAE Standard 52.

7.2.6 Heating and Cooling Loads

Submit computer program generated heating and cooling loads including building air balance (positive pressure to be provided to preclude any infiltration in the office areas) to substantiate design guidelines were met and to size the necessary HVAC equipment. Use a nationally recognized heating and cooling load program such as Trane Trace 600, DOE-2.1E or other program that performs 8760 hourly calculations.

7.2.7 Special Equipment Loads

Obtain heat gain information from the manufacturer for the equipment. Where no information is available, use ASHRAE Fundamentals. The following is, but not limited to, a list of possible equipment (refer to room description for location of equipment):

- a. Copiers
- b. Faxes
- c. Laser Printers
- d. Computers/Monitors
- e. Televisions
- f. VCRs/DVDs
- g. Communication Equipment

7.2.8 Sound and Vibration Criteria

7.2.8.1 General

ASHRAE Applications Handbook and TM 5-805-4 shall be used for selecting heating and air conditioning equipment, ductwork and air supply devices.

7.2.8.1.1 Noise from outdoor equipment shall be considered when locating equipment. Outdoor equipment is to be located on the ground. Equipment located on the ground shall be minimum 30 feet from the building wall. Equipment shall be placed on concrete pads and surrounded by a fence with a

lockable gate in accordance with the Installation Design Guidelines and the Interim Antiterrorism/ Force Protection requirements.

7.2.8.1.2 Airflow to and from outdoor units shall not be obstructed.

7.2.8.1.3 Air handling units shall have dedicated trapped condensate drain lines that terminate outside of the structure. Secondary drain pans shall be placed under all air handler units located in attic areas (over ceilings). Each secondary drain pan shall have a dedicated drain line, independent of the air handler unit condensate drain. This drain must also terminate outside of the structure.

7.2.8.1.4 System controls shall be direct digital control (DDC), and shall be designed to operate the systems automatically, safely, and to maintain even temperatures.

7.2.8.1.5 System design shall meet the parameters set forth in ASHRAE Standard 55, "Thermal Environmental Conditions for Human Occupancy".

7.2.8.1.6 Indoor air quality (IAQ) shall meet the parameters set forth in ASHRAE Standard 62, "Ventilation for Acceptable Indoor Air Quality".

7.2.8.1.7 Ductwork shall be insulated, securely mounted and relatively free of leaks (not to exceed 1 percent of total air flow volume). Care shall be taken to otherwise seal all joints, take-offs, transitions, etc. as necessary to minimize leakage of all duct systems. Sealing materials shall have a projected life of 20 to 30 years.

7.2.8.1.8 Low velocity ductwork systems shall generally be designed to have pressure losses of less than 0.15 in wg per 100 ft. The method used to layout and size (low velocity) must result in a reasonably quiet system and must not require unusual adjustments to activate proper distribution of air to each conditioned space.

7.2.8.1.9 The return air system shall be designed so that air filters are located in a way that allows for convenient replacement, or cleaning. Filters shall be of the type that is disposable or cleanable.

7.2.8.2 Room Requirements

The following NC requirements apply:

All Areas, Except Corridors	NC-30
Corridors	NC-35

7.3 Source of Heating and Cooling

7.3.1 Heating - Heating shall be provided by a natural gas. See Plumbing Chapter.

7.3.2 Cooling - Direct Expansion (Dx) systems shall be used for the areas requiring 24-hour cooling.

7.4 Occupancy

Refer to the Chapter 1, Introduction, for occupancy and hours of operations, and Chapter 4, Architectural for equipment to be included, etc. No reduction in the heating load shall be taken for the internal heat gain due to lighting, equipment and occupancy. People sensible and latent loads for all areas shall be based on light office work conditions as indicated in ASHRAE. Sensible and latent loads for dogs shall be in accordance with ASHRAE Fundamentals Handbook, Chapt. 10 (2001).

7.5 Antiterrorist and Security Measures

7.5.1 A shutoff switch for the air handler units shall be located in the multipurpose area for easy access by personnel in the building.

7.5.2 Utilities shall not be located on external walls.

7.5.3 All outside air intake louvers shall be at least 10 feet above grade.

7.5.4 Ducts larger than 96 square inches that penetrate walls, ceilings or floors of the drug room shall have steel bars in accordance with AR 190-51.

7.6 Testing, Adjusting and Balancing (TAB)

TAB of HVAC systems shall meet the requirements of the UFGS specification 15990A.

7.7 Commissioning

The commissioning of the HVAC system shall meet the requirements of UFGS specification 15995.

7.8 Seismic

All equipment shall be seismically protected in accordance with UFGS 13080, Seismic Protection for Miscellaneous Equipment, TI 809-04, Seismic Design for buildings, and UFGS 15070A, Seismic Protection for Mechanical Equipment.

7.9 Description of Systems

7.9.1 General Heating and Humidification

Heating shall be provided by a gas fired hot water boiler with a distribution pump, which shall be installed in the mechanical room. The boiler shall be sized for 110 percent of the maximum winter design heating load. Supplemental heat from people, light, equipment, etc., shall not be considered when sizing the boilers. Hot water shall be circulated to the hot water coils located in the air terminal units, the outside air preheat coils (sized for outside air temperature of -5 degrees F), and to the separate air handling system for the Kennel area and isolation room.

7.9.2 General Cooling (Chiller) (if used)

Air-cooled chiller shall be located in a screened area outside the mechanical room. The chilled water pump and expansion tank will be located in the mechanical room. Chilled water system shall be charged with 30 percent propylene glycol. All equipment shall be derated accordingly.

7.9.3 General Cooling (Direct Expansion)

Air-cooled condensing units shall be located in a screened area outside the mechanical room. All DX systems shall have evaporator hot gas bypass.

7.9.4 Room Systems

7.9.4.1 Air Handler Units (AHU)

Air conditioning, heating and ventilation shall be provided by a variable volume air handler with a chilled water coil, and supply and return air fans with variable speed motors, with variable frequency drive. Return fan may be provided in the air handler or located in the return air ductwork. The air handler shall be located in the mechanical room. A hot water coil shall be provided in the outside air intake; a coil circulation pump shall be provided for freeze protection. Coil circulation pump shall be located in the mechanical room.

Each zone will be provided a variable air volume (VAV) box with a hot water reheat coil, an individual thermostat, a duct mounted humidifier and a humidistat. A plenum return will be utilized with return air passing through ceiling grilles. The maximum distance between a return duct and the air handling return grilles shall be 65 feet.

7.9.4.2 Mechanical Room

A hot water unit heater will be provided in the mechanical room. The mechanical room will be cooled with mechanical ventilation only. An exhaust fan and intake louver/damper shall be thermostatically controlled to maintain a maximum of 10 degrees F above ambient. Combustion louvers shall be provided in accordance with NFPA 54.

7.9.4.3 Kennel Run and Isolation Rooms

Separate systems - heating and cooling, shall be provided for each of the following areas: 1) kennel run area and 2) Isolation Room. These areas shall be completely separate from the rest of the building, and shall be provided with 100 percent outdoor air as specified in Paragraph "Ventilation".

7.10 Equipment and Materials

Final specification to be developed in accordance with the UFGS specifications and as indicated in this RFP.

7.11 Operation and Maintenance (O&M) Manuals

Complete O&M manuals and training for all HVAC equipment shall be provided as indicated in each technical section of the UFGS specifications.

CHAPTER 8

PLUMBING

8.0 PLUMBING

8.1 GENERAL REQUIREMENTS

Complete plumbing and gas piping systems will be provided for the building. The term "plumbing installation" as used herein includes water service including all pipes, fixtures and equipment. A system includes all connections in the building to a point 5 feet outside the building. The plumbing and gas piping systems shall be designed in accordance with the following criteria and specifications unless specified otherwise herein.

- a. National Standard Plumbing Code
- b. Technical Manual (TM 5-810-5) Plumbing
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- c. ASHRAE Systems and Applications
- d. Plumbing and Drainage Institute (PDI-WH-201) Water Hammer Arrestors
- e. Comprehensive National Energy Policy Act (PL. 102-486)
- f. American National Standard for Accessible and Useable Buildings and Facilities (CABO A117.1)
- g. Technical Instructions Design Criteria (TI 800-01),
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>
- h. Architectural and Engineering Instructions (AEI) Design Criteria.
- i. Instructions and Guidance to Architects and Engineers Military Construction (Mechanical)
- j. American Gas Association (AGA) - Plastic Pipe Manual for Gas Service.
- k. American Water Works Association (AWWA)
- l. National Fire Protection Agency (NFPA) 54 - National Fuel Gas Code

8.1.1 Materials and Equipment

Materials and equipment shall be standard catalog products of manufacturers regularly engaged in production of such materials. All selected equipment shall be manufacturer's latest standard model.

8.1.2 Seismic Requirements

All equipment shall be seismically protected in accordance with UFGS 13080A, Seismic protection for Miscellaneous Equipment; and UFGS 15070A, Seismic Protection for Mechanical Equipment.

8.1.3 Submittals:

Submittals shall be provided by the Contractor to the Contracting Officer for approval in accordance with Section 01330, Submittal Procedures.

8.1.3.1 Calculations, Drawings, and Specifications

The water supply for this facility assumed to be adequate. The Contractor shall perform a hydrant flow test to verify that adequate water flow and pressure are available. Installation of the plumbing equipment shall not begin until such time that all the calculations, drawings, and specifications are returned stamped "approved."

8.2 PLUMBING FIXTURES AND EQUIPMENT

8.2.1 Plumbing Fixtures, General

Fixtures shall be water conservation type, in accordance with NAPHCC-1. Fixtures shall be provided complete with fittings. All fixtures, fittings, and trim in a project shall be from the same manufacturer and shall have the same finish. Faucets shall be equipped with high efficiency faucet aerators. All faucets, faucet handles, and miscellaneous trim shall be of metal construction with a polished chrome finish. Installation of fixtures for use by the physically handicapped shall be in accordance with CABO A117.1.

8.2.1.1 Lavatory/Sink Faucets

Faucet shall be center set single-control type with seals and seats combined in one replaceable cartridge sized to be interchangeable among similar fixtures such as lavatories or having replaceable seals and seats removable either as a seat insert or as a part of a replaceable valve unit. Water flow for manually operated faucets shall not exceed 2.5 gpm.

8.2.1.2 Lavatories

Lavatories shall be manufacturers standard sink depth, vitreous china, oval, under counter mounted, and shall comply with ASME A112.19.1M or ASME A112.19.2M. Lavatories shall have a pop-up drain stopper, and shall be handicapped accessible with wrist or elbow controls with gooseneck spout.

8.2.1.3 Kitchen Sink

Under counter mounted, double bowl 42 x 21 inches stainless steel ASME A112.19.3M. Faucet and Spout - Faucets shall meet the requirements of NSF 61, Section 9. Cast or wrought copper alloy. Aerator shall have internal threads.

Handle - Cast copper alloy, wrought copper alloy, or stainless steel. Single lever type.

Drain Assembly - Plug, cup strainer, crossbars, jam nuts, washers, couplings, stopper, etc., shall be copper alloy or stainless steel.

Garbage disposals machines shall be in accordance with CID A-A-50012.

8.2.1.4 Water Closets

Water closets shall be the floor-mounted elongated vitreous china bowl type with top supply spud and white closed-front seat and cover. Flushometer valve shall be large diaphragm type with non-hold open feature, backcheck angle control stop, and vacuum breaker. The minimum upper chamber inside diameter

shall be not less than 2.625 inches at the point where the diaphragm is sealed between the upper and lower chambers. The maximum water use per flush is 1.6 gallons.

8.2.1.5 Water Closets, Handicapped

Handicapped type shall be provided in accordance with CABO A117.1; Height of top rim of bowl shall be 18 inches above the finished floor. Other features are the same as in the paragraph: Water Closets.

8.2.1.6 Showers

Showers shall be as specified in Chapter 4 - ARCHITECTURAL. Shower heads, CID A-A-240 shall be adjustable spray type and shall include a non-removable, tamperproof device to limit water flow to 2.5 gpm when tested in accordance with ASME A112.18.1M.

8.2.1.7 Electric Water Coolers

Electric water coolers shall be self contained, conform to ARI 1010, use one of the fluorocarbon gases conforming to ARI 700 and ASHRAE 34 which has an ozone depletion potential of .05 or less. Min capacity shall be 8 gallons per hour at 50° F with an inlet water temperature of 80° F, while residing in a room environment of 90° F. Unit shall have self closing valves with automatic stream regulators, flow control capability, push button actuated. Exposed surfaces of stainless steel shall have a no. 4 general polish. Spouts shall provide a flow of water at least 4 inches high so as to allow the insertion of a cup or glass under the flow of water.

8.2.1.8 Electric Water Coolers, Handicapped

Handicapped type shall be provided. Unit shall be ADA compliant. Other features shall be as specified above in paragraph: Electric Water Coolers.

8.2.1.9 Service Sinks

Service sinks shall be provided for the janitor closets. Sink shall be stainless steel ASME A112.19.3M trap standard 36 inches wide x 24 inches deep splash-back 9 inches high. Faucet and Spout - Cast or wrought copper alloy, with top or bottom brace, with back-flow preventer. Faucets shall have replaceable seat and the washer shall rotate onto the seat. Handles shall be lever type. Strainers shall have internal threads. Drain Assembly - Plug, cup strainer, crossbars, jam nuts, washers, couplings, stopper, etc., shall be copper alloy or stainless steel. Trap - Cast iron, minimum 3-inch diameter.

8.2.1.10 Floor Drains

Floor drains shall be provided in the mechanical room(s) and in areas with condensate producing equipment. Floor drains shall be provided in toilets with 3 or more water closets. Floor drains shall be cast iron with integral seepage pan, and adjustable perforated or slotted chromium-plated bronze, nickel bronze, or nickel brass strainer. Floor drains in bathrooms shall be automatically trap primed.

8.2.2 Water Heater

A gas fired water heater shall be provided. The water heater shall be installed in the mechanical room. The unit shall be sized based on ASHRAE 1999

Applications, Chapter 48 (service water heating), hot water demand per fixture method, office building and shall be a minimum of 80 gallons. Water heater shall be gas-fired, automatic storage, self-contained type with storage tank, burner, controls, and safety features as a minimum. The water heater shall shall comply with the requirements of ASHRAE 90A. The heater shall be complete with a control system and shall have ASME rated pressure and temperature relief valves. Gas fired heater shall conform to ANSI Z21.10.1 when input is 75,000 btuh or less and ANSI Z21.10.3 for heaters with input greater than 75,000 btuh.

8.2.2.2 Thermostatic Mixing Valves

Thermostatic mixing valve(s) shall be located in the mechanical room next to the water heater(s) and shall be designed and manufactured specifically for domestic hot water temperature control. The thermostatic mixing valve(s) shall be capable of maintaining a constant 110° F for all fixtures. The thermostatic mixing valve shall be equipped with a separate low-demand valve and a high-demand valve to ensure water temperature reliability at different flow rates.

8.2.2.3 Water Meters and Backflow Preventers

Provide a water meter, reduced pressure backflow preventer assemblies, and drain valves on the domestic water lines serving the facility. Domestic cold water shall be taken from an exterior water main. The backflow preventer shall be approved by AWWA C506.

8.2.3 Hose Bibbs

Two hot water only wall faucets shall be provided inside the kennel run areas, and two hot water only wall hydrants or yard hydrants shall be provided outside the kennel run areas. In additions two cold water wall faucets shall be provide outside the main building. The inside faucets shall be provided at each end of the kennel run area, and outside faucets shall be on opposite sides of the building of the area being served. Piping to all faucets shall be a minimum of 1 inch diameter, reduced as required, at the point of connection with the faucet.

8.2.3.1 Wall Faucets

Wall faucets with vacuum-breaker backflow preventer shall be brass with 3/4 inch male inlet threads, hexagon shoulder, and 3/4 inch hose connection. Faucet handle shall be securely attached to stem.

8.2.3.2 Wall Hydrants

Wall hydrants with vacuum-breaker backflow preventer shall have a nickel-brass or nickel-bronze wall plate or flange with nozzle and detachable key handle. A brass or bronze operating rod shall be provided within a galvanized iron casing of sufficient length to extend through the wall so that the valve is inside the building, and the portion of the hydrant between the outlet and valve is self-draining. A brass or bronze valve with coupling and union elbow having metal-to-metal seat shall be provided. Valve rod and seat washer shall be removable through the face of the hydrant. The hydrant shall have 3/4 inch exposed hose thread on spout and 3/4 inch male pipe thread on inlet.

8.2.3.3 Yard Hydrants

Yard box or post hydrants shall have valve housings located below frost lines. Water from the casing shall be drained after valve is shut off. Hydrant shall

be bronze with cast-iron box or casing guard. "T" handle key shall be provided.

8.3 PIPING (NOT INCLUDING GAS PIPING)

Pipe sizes will be per the National Standard Plumbing Code. The plumbing systems will conform to the requirements of the National Standard Plumbing Code. Flow velocities in water pipe will not exceed 8 feet per second. All piping will be sloped to permit complete drainage and be properly supported with allowances for expansion and contraction. Water supply piping will not be buried under concrete floors except where other methods of installation are impracticable. All piping with the exception of individual fixture run-outs will be completely concealed. Overhead piping will be concealed above ceilings. Vertical stacks and risers will be concealed in pipe chases or properly protected from damage. All work will be installed so as not to interfere with other mechanical and electrical equipment. The building will have a shut off valve and strainer with drain in the cold water main after it enters the building. The water distribution system will be protected against back-flow of water to the main after it enters the building.

8.3.1 Domestic Water Piping

All above grade water piping shall be installed inside the building thermal envelope.

8.3.1.1 Above Ground Water Piping

All above ground piping shall be Type L hard-drawn copper. Fittings for hard-drawn copper shall conform to ANSI B16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

8.3.1.2 Below Ground Water Piping

All underground piping shall be seamless copper water tube, ASTM B 88 type K with brazed joints, or type F soft copper without joints. Joints under the slabs are prohibited. Under slab supply piping shall be limited to building service entrance only.

8.3.1.3 Wall Hydrants

Wall hydrants shall be provided on the exterior of the building in accordance with TM 5-810-5.

8.3.2 Sanitary Piping

All sanitary piping shall be concealed. Each fixture and piece of equipment, except water closets, requiring connection to the drainage system shall be provided with a trap.

8.3.3 Drain, Waste, and Vent Piping

Drain, waste, and vent piping shall be in accordance with ASTM D 2661.

8.3.4 Roof Drainage

Design of roof drainage shall be in accordance with the National Standard Plumbing Code.

8.4 FLUSH SYSTEM FOR TRENCH DRAINAGE

The flush system for the trench drainag system in the dog kennel area shall be as specified in Chapt. 4 - Civil Design and Site Development.

8.5 GAS PIPING

Gas piping from the gas main to the gas meter shall be as specified in Chapter 2 - CIVIL DESIGN AND SITE DEVELOPMENT. The contractor shall provide all piping required after the meter. The Contractor shall provide design calculations for sizing of pipe. Pipe size shall be based on building demand. Installation of the gas system shall be in accordance with NFPA 54, the National Fuel Gas Code, UL-06, the Gas and Oil Equipment Directory, ASME B31.8 - 1999 Edition, and all local/seismic codes.

8.5.1 Gas Connections

Final connections for gas equipment and appliances shall conform to ANSI Z21.45.

8.5.2 Gas Regulator/Meter Assembly

Regulator/meter assembly shall be sized for the building gas requirements and shall be located outside next to the mechanical room. The regulator/meter assembly will be provided and installed by Washington Gas Company on a concrete pad to be furnished by the contractor.

8.6 INSULATION

All domestic hot water pipes and all exposed traps for handicapped lavatories shall be insulated in accordance with UFGS 15080.

CHAPTER 9

FIRE PROTECTION

9.0 FIRE PROTECTION

9.1 Codes, Products, and Installation Standards.

9.1.1 Design Standards:

The fire protection systems shall be designed in accordance with the following codes, criteria and specifications unless otherwise specified herein (most recent edition):

- a. NFPA (National Fire Protection Association) 01; Fire Prevention Code
- b. NFPA (National Fire Protection Association) 10; Portable Fire Extinguishers
- c. NFPA (National Fire Protection Association) 13; Installation of Sprinkler Systems
- d. NFPA (National Fire Protection Association) 14; Installation of Standpipe and Hose Systems
- e. NFPA (National Fire Protection Association) 17A; Installation of Wet Chemical Extinguishing Systems
- f. NFPA (National Fire Protection Association) 20; Installation of Centrifugal Fire Pumps
- g. NFPA (National Fire Protection Association) 24; Installation of Private Fire Service Mains and Their Appurtenances
- h. NFPA (National Fire Protection Association) 70; National Electric Code
- i. NFPA (National Fire Protection Association) 72; National Fire Alarm Code
- j. NFPA (National Fire Protection Association) 90A; Installation of Air Conditioning and Ventilation Systems
- k. NFPA (National Fire Protection Association) 101; Life Safety Code
- l. Other NFPA standards as applicable
- m. UL (Underwriters' Laboratories) Standards as appropriate
- n. FM (Factory Mutual) Standards as appropriate
- o. Americans with Disabilities Act
- p. Uniform Federal Accessibility Standard
- q. International Building Code
- r. Uniform Fire Code
- s. Military Handbook 1008C; Fire Protection for Facilities Engineering, Design and Construction
http://www.efdlant.navfac.navy.mil/lantops_15/documents/MH/1008C.PDF
- t. TI (Technical Instructions) 800-01
<http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

9.1.2 Products:

Material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years (unless noted otherwise) prior to bid opening.

9.1.3 Installation Standards:

The installation of electrical equipment shall comply with the latest edition of the National Electrical Code and the National Electrical Safety Code (ANSI C2).

Major components of the fire alarm system shall be provided with laminated plastic (1/4 inch letters on black outer layers with white core) identification.

Detail drawings, shall be reviewed by a Registered Professional Engineer with verification of experience and at least 4 years of current experience in the design of the fire protection and detection systems.

Fire Protection, Fire Suppression, Fire Detection, and Life Safety Systems design, specifications, and drawings shall be stamped, signed and dated by a Fire Protection Engineer in accordance with MIL-HNDK-1008C.

9.2 ADDRESSABLE FIRE ALARM SYSTEM

9.2.1 General

- 9.2.1.1 The fire alarm system shall comply with the latest edition of NFPA 72. The system shall be general alarm and noncoded. It shall utilize an addressable microprocessor based system with manual and automatic alarm initiation. Signal transmission shall be a multiplex format and be dedicated to fire alarm service only. "Shared" systems (security and/or energy management) shall not be permitted. All fire alarm equipment must be UL (Underwriters' Laboratories) listed for its intended purpose in the "Fire Protection Equipment Directory".
- 9.2.1.2 Audible alarm indication shall be via electronic horns. Spacing and location shall be commensurate with the applicable codes. Visual alarm indication shall be by synchronized strobes. Spacing and location shall be commensurate with the ADA (Americans with Disabilities Act) applicable codes.
- 9.2.1.3 The NAC (Notification Appliance Circuits) shall be Class "A", Style "Z". The SLC (Signal Line Circuits) shall be Class "A", Style "6". The AID (Alarm Indicating Device) circuits shall be Class "A", Style "D". All circuits shall have at least 40% spare capacity for additional devices (initiating and indicating). Wiring and conduit for the alarm initiating devices (pull stations, water flow, etc.) shall be completely segregated from the wiring and conduit for the alarm indicating devices (horns and strobes). Minimum conduit size shall be ½ inch.
- 9.2.1.4 All signals from the fire alarm panel shall be transmitted to the base fire department fire alarm receiving station (Bldg. 6619) through the a King Fisher radio transceiver. The equipment shall be proprietary and must be compatible with the existing base fire department system. Existing base fire department fire alarm receiving system shall be provided with the necessary hardware/equipment to integrate the new system from the facility into the existing base-wide system. Three distinct signals shall be transmitted to the receiving station. They are: Alarm, Supervisory and Trouble.
- 9.2.1.5 A General Alarm condition shall initiate the following:
 - a. Indicate the general alarm condition at the fire alarm control panel (FACP) and the graphic annunciator.
 - b. Identify the specific device (point number) that is the source of the general alarm at the FACP and the graphic annunciator.
 - c. Initiate the audible and visual alarm signals throughout the facility.

- d. Initiate automatic recall of elevators (if so equipped).
- e. Close fire doors and smoke doors held open by electro-magnetic door holders.
- f. Shutdown of supply and return fans serving the area in which the alarm was initiated.
- g. Unlocking designated doors
- h. Records the event on the system printer.
- i. Transmit the signal to the base fire department.

9.2.1.6 A Supervisory Alarm condition shall initiate the following:

- a. Cause an audible and visual signal at the FACP and the graphic annunciator.
- b. Identify the specific device (point number) that is the source of the supervisory alarm at the FACP and the graphic annunciator.
- c. Records the event on the system printer.
- d. Transmit the signal to the base fire department.

9.2.1.7 A trouble condition shall initiate the following:

- a. Cause an audible and visual signal at the FACP and the graphic annunciator.
- b. Provides a description of the "off normal" condition"
- c. Records the event on the system printer.
- d. Transmit the signal to the base fire department.

9.2.1.8 Protection of the control panel shall be in accordance with NFPA 72 paragraph 1-5.6. Manual pull stations shall be provided at all exterior doors and egress points from the building. Smoke detectors shall be provided throughout this facility. Fire alarm horns and strobes shall be provided throughout the interior. A fire alarm condition shall activate the alarms; shut down the heating, ventilating and air conditioning systems, close any fire doors, and transmit an alarm to the Base Fire Station.

9.2.1.9 Devices that initiate a General Alarm shall be manual pull stations, water flow switches, smoke detectors, heat detectors, beam detectors or pressure switches.

9.2.1.10 Devices which initiate a Supervisory Alarm shall be sprinkler tamper switches, low air switches, high air switches, fire pump signals, and emergency generator signals.

9.2.1.11 Items which initiate a Trouble signal are "off normal" conditions which are displayed on the face of the fire alarm control panel. This may be a fault such as an open circuit or a ground.

9.2.2 Alarm Initiating Devices

9.2.2.1 Manual pull stations shall be of the double-action type. They shall be reset with the use of a key. The key shall be put into the pull station from the front of the unit. The key shall not enter the pull station from the side, top or bottom.

9.2.2.2 Smoke detectors shall be self-restoring to normal condition after activation. The detector shall plug into a base unit. The base unit shall contain one or two red LEDs to indicate that the smoke detector is operational. The LED(s) shall blink to indicate that the detector

is analyzing for the presence of smoke. The LED(s) shall stay lit to indicate that the unit is in alarm condition.

- 9.2.2.3 Duct smoke detectors shall be photoelectric. The sampling tube shall be perforated and shall traverse the full width of the affected duct. The duct detector shall be a complete unit consisting of housing, detector, and relay as required for fan shutdown and for signaling the FACP. If the duct detector is concealed above a finished ceiling, a remote LED plate shall be provided at the ceiling level to indicate the activity of the duct detector.
- 9.2.2.4 Heat detectors shall be fixed temperature or combination rate-of-rise and fixed temperature commensurate with the hazard to be protected. The detector shall plug into a base unit. The base unit shall contain one or two red LEDs to indicate that the heat detector is operational. The LED(s) shall blink to indicate that the detector is operating normally. The LED(s) shall stay lit to indicate that the unit is in the alarm condition.
- 9.2.2.5 Waterflow Switches shall be provided by the sprinkler contractor and shall be connected to the fire alarm system by a monitoring module.
- 9.2.2.6 Sprinkler valve supervisory switches shall be provided by the sprinkler contractor and shall be connected to the fire alarm system by a monitoring module.
- 9.2.2.7 Monitor module shall be designed to monitor system components which are not equipped for multiplex communication with the fire alarm control panel and cannot transmit a unique identification signal. Monitor modules shall be provided in the appropriate quantity and location (no greater than 3 feet away) to monitor other fire alarm initiating devices or supervisory devices and provide a unique address to the fire alarm control panel.

9.2.3 Alarm Indicating Devices

- 9.2.3.1 Fire alarm horns shall be of the vibrating and polarized type. They shall operate on 24 volts DC. The mechanisms shall be mounted behind a grille. The horns may be wall mounted or ceiling mounted.
- 9.2.3.2 Visual signals shall be provided via strobe lights utilizing high-intensity clear plastic lens with a xenon flash tube. The word "FIRE" shall be engraved on the unit. The orientation of the word "FIRE" shall be correct. All strobes shall be UL 1971 compliant as well as ADA compliant. All strobes shall be synchronized to flash simultaneously. The strobes may be wall mounted or ceiling mounted.
- 9.2.3.3 Combination horn/strobe units may be used at the discretion of the contractor.

9.2.4 Fire Alarm Control Panel (FACP)

- 9.2.4.1 The fire alarm control panel shall comply with UL 864 "Control Units for Fire Protective Signaling Systems". FACP shall be mounted on the interior wall of the electrical/mechanical room. The fire alarm outer cabinet shall be constructed of steel and be lockable with a key. Fire alarm batteries shall not be housed in the fire alarm control panel cabinet. Batteries shall be housed in a separate cabinet.

- 9.2.4.2 Provide all internal cabinet components as required to fully support the complete fire alarm system. Provide additional components to provide additional spare capacity as required.
- 9.2.4.3 The display shall be alphanumeric and be capable of holding at least 80 characters on the liquid Quartz front. All operator control key pad features shall be easily accessible at the front of the unit in the vicinity of the liquid quartz display.
- 9.2.4.4 Provide a written (typed) set of instructions mounted behind LEXAN plastic. The instructions must provide step-by-step directions to assist the operator at hand in the correct operation of the fire alarm system. The instructions must address resetting the alarm initiating devices (such as pull stations) and the correct operation of the fire alarm panel (acknowledge, reset, etc.).

9.2.5 Graphic Annunciator

Provide a graphic annunciator panel with minimum dimensions 24 inches by 24 inches. The backbox shall be steel or aluminum. The faceplate shall be satin plastic. The faceplate shall contain, as a minimum, an architectural drawing of the facility. It shall show doors, and rooms. A "YOU ARE HERE" designation shall be shown and correctly oriented. LEDs shall identify the type of device initiating the condition (pull station, waterflow, etc.); and the type of problem (alarm, supervisory or trouble). Normal power and emergency power must also be shown on the face plate. Normal power light shall be green. Alarm power light shall be red. Supervisory and trouble lights shall be yellow. Device lights shall be red. Provide a lamp test switch on the face of the unit to test the graphic annunciator LEDs.

9.2.6 Emergency Power Supply

- 9.2.6.1 Provide sealed lead-acid batteries with sufficient capacity to operate the complete fire alarm system in the supervisory mode for 72 hours. Following the supervisory mode, provide additional capacity to operate all devices in the "alarm" mode for a minimum of 15 minutes.
- 9.2.6.2 The batteries shall be housed in a separate lockable steel cabinet. The cabinet shall be intended for battery storage from the fire alarm equipment manufacturer. The batteries shall not sit directly on the metal floor of the battery cabinet. A wood bottom shall be provided in the cabinet for the batteries to rest upon.
- 9.2.6.3 Power for the fire alarm system shall be automatically transferred from the normal 120 volts AC to battery back up. Manual transfer shall not be permitted.

9.2.7 Wire

All wire shall be solid copper. Minimum wire size shall be #12 AWG for 120 volts AC circuits. Minimum wire size shall be #16 AWG for 24 volts DC circuits. Alarm initiating circuits shall utilize twisted-shielded pair wiring with a foil shield and a #16 AWG drain wire.

9.2.8 Installation

9.2.8.1 All wire shall be installed in conduit, $\frac{3}{4}$ inch minimum. All wiring and conduit shall be laid parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings. All wiring and conduit shall be installed concealed unless in an unfinished area.

9.2.8.2 Battery box to be installed adjacent to the fire alarm control panel.

9.3 FIRE SUPPRESSION SYSTEM

9.3.1 General:

The new building shall be fully protected with automatic wet pipe sprinkler systems. All areas of the facility shall be protected. Sprinkler system design shall be in accordance with MIL-HDBK-1008C, NFPA 13, and Specification Section 13930. In the event of a specification conflict, the most stringent shall apply. Design densities and design areas shall be as indicated in MIL-HDBK-1008C. The sprinkler system shall be designed using computer generated hydraulic calculations. As a minimum, the sprinkler system shall be configured so that each floor is a zone. Each zone shall be provided with a floor valve assembly consisting of an OS&Y gate valve, tamper switch, flow switch, test and drain valve assembly and drain line. Test and drain lines shall be routed to the exterior of the building. Sprinkler components which require periodic access, such as floor control valves, drain valves and test valves shall not be located in inaccessible areas.

9.3.1.1 Sprinkler hazard classifications for specific areas shall be as indicated below. Classifications for areas not listed shall be in accordance with MIL-HDBK-1008C and NFPA 13.

9.3.1.2 Ordinary Hazard Group I - mechanical rooms without fuel fired equipment, electrical rooms, and communication rooms. Ordinary Hazard Group II - storage rooms, mechanical rooms with fuel fired equipment

9.3.1.3 Exterior hose stream demand shall be in accordance with MIL-HDBK 1008C. This shall be 250 gpm for light hazard and 500 gpm for ordinary hazard. Hose stream demand shall be included in the hydraulic calculations.

9.3.1.4 Fire hose standpipe systems shall be provided if required. Standpipe systems shall be designed in accordance with MIL-HDBK 1008C and NFPA 14.

9.3.2 Piping

No copper or plastic sprinkler piping shall be allowed. Copper/brass piping shall be permitted in conjunction with the trim out of dry-pipe; pre-action and fire pump/jockey assemblies. All sprinkler piping shall be black steel schedule 40.

9.3.3 Joints

All joints shall be grooved or threaded. Press fit joints shall not be permitted.

9.3.4 Fire Water Supply

9.3.4.1 The water supply for this facility assumed to be adequate. The Contractor shall perform a hydrant flow test to verify that adequate water flow and pressure are available.

9.3.4.2 The contractor in the immediate vicinity of the proposed site plan shall conduct a fire hydrant flow test. The contractor shall utilize their flow test data as the basis for the water supply design.

9.3.5 Incoming Service

The incoming fire protection service shall be located in the mechanical room. A double check backflow preventer shall be provided with OS&Y valves at each end to isolate the assembly.

9.3.6 Sprinkler Heads

Sprinklers with internal O-rings shall not be used. Sprinklers shall be quick response unless otherwise indicated. Head placement shall be in the middle of ceiling tiles in finished areas.

9.3.7 Fire Department Connection

A fire department wall type Siamese connection shall be provided. The connection shall be chrome plated brass, with a wall escutcheon and two-way connections. Two 2-1/2 inch female inlets shall be provided, having NH standard threads. Each inlet shall have a clapper valve, a plug and a chain. The escutcheon shall be lettered to identify the interior building fire protection system(s) as appropriate, either "AUTO SPKR" or "AUTO SPKR & STANDPIPE".

9.3.8 Alarm & Supervisory Devices

9.3.8.1 Water flow switches shall be vane type and be designed for horizontal or vertical installation. They shall have 2-SPDT circuit switches to provide isolated alarm and auxiliary contacts. The switch shall be capable of field adjustable retard from 0 to 60 seconds. The switches shall be initially set to 30-second retard. Each switch shall be equipped with a tamper-proof cover that sends a signal to the fire alarm control panel when the cover is removed.

9.3.8.2 Valve tamper switch shall be suitable for mounting to the type of control valve to be supervised. The switch shall be tamper resistant and contain one set of SPDT (Form C) contacts. The switch shall send a supervisory signal to the fire alarm control panel upon closure of the valve of more than two revolutions of the valve stem.

9.4 Testing

9.4.1 Testing Standards:

Upon completion of the installation, the system shall be subjected to functional, operational, performance and acceptance tests of each installed initiating and notification appliance. The test shall include all requirements of NFPA 72 and the following:

- a. Test of each function of the control panel.
- b. Test of each circuit in both trouble and normal modes.
- c. Tests of each alarm initiating devices in both normal and trouble conditions.
- d. Tests of each control circuit and device.
- e. Tests of each alarm notification appliance.
- f. Tests of the battery charger and batteries.
- g. Complete operational tests under emergency power supply.

- h. Visual inspection of wiring connections.
- i. Opening the circuit at each alarm initiating device and notification appliance to test the wiring supervisory feature.
- j. Ground faults.
- k. Short circuit faults.
- l. Stray voltage.
- m. Loop resistance.

Provide minimum 10 days advance notice of final acceptance test request. Provide two sets of "AS-BUILT" drawings for the final acceptance test. Provide all necessary two-way communication devices (hand-held radios) in the quantity deemed necessary by the government. Provide all other test equipment as directed by the government. The contractor shall coordinate installation and testing with the POC Mike Groeneveld (703) 806-0045.

CHAPTER 10

LANDSCAPE

10.0 LANDSCAPING

10.1 GENERAL

The landscape plan shall be designed in accordance with the Fort Belvoir Installation Design Guide (IDG). The final landscape plan shall have all plants and site furnishings labeled. Provide a plant schedule with plant quantities, common and botanical plant names, plant sizes and spacing of plants. Provide tree and shrub planting details, edging detail, tree protection, and site furnishings details or cut sheets. A soil test shall be performed for pH, chemical analysis and mechanical analysis to establish the quantities and type of soil amendments required to meet local growing conditions for the type and variety of trees, shrubs and grassing. Landscaping and Grassing (Seeding and Sodding) specifications shall also be provided with the final design. The plant specifications shall include a one-year warranty or a warranty until the beneficial occupancy date; whichever is longer, for the replacement for all plants. The landscape specification shall use all of the pertinent plant standards in ANSI Z60.1. It shall also include maintenance (watering, weeding and plant replacement) of all plant materials. This maintenance shall continue until the beneficial occupancy date has occurred. The contractor shall also provide a maintenance manual for the user with specific information on caring (watering, pruning, fertilizing and weeding beds) for all of the new plantings.

10.2 LOCATION AND SETTING

10.2.1 This project is a military dog kennel with associated administrative and storage areas. Site planning and landscape design shall be focused to meet the Ft. Belvoir design emphasis of an open park-like setting. The landscape design will follow Ft Belvoir landscape guidelines and conceptual plans for streetscapes utilizing several landscape features.

10.2.2 Plant materials (trees and shrub groupings) shall be utilized to accent and define the building and site areas, and buffer visually unattractive elements. Plant materials shall be selected for low maintenance and aesthetics. Trees shall be utilized in accordance with the IDG objectives. Tree species selected shall be fast growing providing shade in a few years. Large canopy trees will be used around the perimeter of outdoor patio or court areas. Plantings should be coordinated with, and to the extent possible, satisfy landscaping requirements.

10.3 PLANTING DESIGN

10.3.1 Planting design is to be compatible with the surrounding environment. Emphasis shall be given to preserving as much of the existing plant material as possible. It is preferable to save groupings of trees with under story plants rather than individual trees. Preserve the trees in any wet site areas as much as possible. The only trees to be removed are those in conflict with the proposed building, pavement, utilities and walkways. Tree protection fencing shall be used around trees being saved at their drip line. Emphasis shall also be given to using trees and shrubs that are native,

hardy and low maintenance. Group plants of similar water requirements together.

10.3.2 Provide a foundation planting for the facility, which includes groundcovers, shrubs and small ornamental trees. Provide metal edging around beds in accordance with IDG. A planted buffer shall be used around the dog kennel runs to provide a visual barrier to the dogs, and a low maintenance ground cover shall be used beyond the buffer to keep routine maintenance activities as far away as possible from the dog runs.

10.3.3 Provide extensive shade trees and sound buffers, and screen visible utility enclosures and dumpster enclosures. Use only plant materials for screening. Use large size plant material; 15 gallon containers to screen dumpster and 7-15 gallon to screen utilities. Allow for adequate access clearance in shrub screen around chillers, transformers, and switches. To prevent hazard to vehicles and pedestrians, landscape materials shall not block vehicular sightlines at entries and exits along roadways and parking lots.

10.3.4 Planting material shall be non-toxic species, thorn-free, non-allergenic, and free of fruits or berries and will not be prone to large limb breakage.

10.4 TREES

10.4.1 In order satisfy the requirements of the Fort Belvoir tree policy two trees must be planted for every tree removed.

10.4.2 All trees shall be under warrantee by the Contractor for one year from initial acceptance at which time they shall be in a healthy and vigorous condition.

10.5 TREE PLANTING

All trees shall be staked. No bare root trees shall be used. Only container and/or ball and burlap trees shall be used. The new tree-planting hole shall be 3 times the width of the tree's root ball. Provide an extra spaded area 8" in depth and 12" wide on either side of the planting hole. A 4" high water saucer shall be placed around the root ball of each tree. All planting holes and spaded areas shall be mulched with a 3" depth of shredded hardwood bark. Accurate watering amounts and schedules shall be provided in the contractor's specification. Backfill shall be the site's native topsoil.

10.6 SHRUBS

Shrubs shall be the following minimum size: for ground covers use 1 or 2 gallons, for small shrubs use a minimum size of 3 gallon container, and 7 gallons for the large shrubs. 15 gallon shall be for the large specimen shrubs. Shrub and ground cover beds shall be provided with a hard edging consisting of a minimum of 5"x1/8" steel or aluminum edging (painted black), brick set in concrete or a concrete curbing. Topsoil shall be used for shrub and groundcover backfill and planting. All shrubs shall be under warrantee by the Contractor for one year from initial acceptance at which time they shall be in a healthy and vigorous condition.

10.7 GRASSING (SEEDING AND SODDING)

Turf type seeding or sodding shall be provided for all disturbed and bare areas, which are not paved or otherwise, landscaped. All seeded areas shall be mulched on the same day as seeding. Accurate watering amounts and schedules shall be provided in the contractor's specification. Grass species required shall meet local growing conditions. Confirm with local Agricultural Extension Service, State Agricultural Experimental Station, local university, Turfgrass Producers International (TPI), or other reputable source to determine/verify: species selection, establishment season; seeding and sodding installation procedures; application rates for the soil amendments; and other installation requirements particular to the project area.

10.8 GRASSING (SEEDING AND SODDING) SPECIFICATIONS

10.8.1 Seeding and sodding specifications shall be developed by the contractor for use in this project. A minimum of 2" of topsoil shall be provided for all seeded and sodded areas. Reference Section "TOPSOIL".

10.8.2 "Permanent" Seed Classification shall be State-Certified seed of the latest season's crop provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws. "Permanent" Seed Quality shall conform to FS JJJ-S-181. Weed seed shall not exceed 1 percent by weight of the total mixture. Wet, moldy, or otherwise damaged seed shall be rejected.

10.8.3 "Temporary" Seed Classification shall be State-Certified seed of the latest season's crop provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws. "Temporary" Seed Quality shall conform to FS JJJ-S-181. Weed seed shall not exceed percent by weight of the total mixture. Wet, moldy, or otherwise damaged seed shall be rejected.

10.8.4 Sodding shall be State-Certified. Delivered sod shall have been cut not earlier than the previous day, and shall be delivered on the day it is to be installed. Storage of sod is not permitted. Sod shall be relatively free of thatch, diseases, nematodes, soil-borne insects, weeds or undesirable plants, stones larger than 1 inch in diameter, woody plant roots, and other materials detrimental to a healthy stand of grass plants. Broadleaf weeds and patches of foreign grasses are not permitted. Sodding shall be installed from March 15 to May 1 for spring establishment; and from Sept 15 to Dec 1 for fall establishment. Where slopes are 3:1 or steeper, provide sod in lieu of seeding or seeding covered with a standard straw erosion control mat.

10.8.5 "Until the beneficial occupancy date the sod and seeded areas shall be watered, maintained and where needed replaced. The grass sod and seeding warranty shall be for a satisfactory stand of grass for 30 days after completion. If the beneficial occupancy date is beyond the 30 days then the warranty shall continue until that date. An acceptable stand of grass for sodding is a solid grass cover with no gaps. For seeding it is not less than

20 seedlings of permanent grass at least 2 inches long in each square foot with no gaps larger than 4 inches.

10.8.6 Soil amendments shall be determined by performing a soil test and meeting local growing conditions on the project site.

10.9 TOPSOIL

Topsoil used in grassing and planting of shrubs, ground covers and trees shall be the saved topsoil from the site. It shall have a one (1) percent minimum organic content and a pH of 4.5 to 6.0. It shall be free of subsoil, brush, weeds, stones, roots, stumps, or any other substance that might harm plant growth. If the stored site's topsoil is not sufficient to cover the landscaping needs, additional topsoil shall be provided by the contractor from an approved off site source. The approval shall be by the contracting officer with assistance from the local Soil Conservation Service (USDA).

10.10 TREE PROTECTION

Existing trees, both individual and groups to be saved shall be protected with wooden tree protection fences. These shall be installed before any earthwork occurs and shall be maintained and repaired when damaged. These shall remain in place until after all the landscape work is completed. The fences shall be placed no closer than the dripline of the trees. The fence shall be made out of 4x4 posts set no further than 8' apart and shall have a 2x2 top rail. The height shall be a minimum of 4'. No excavation, filling, trenching for utilities or storage of materials shall be allowed within these tree-protected areas. If there is bare earth under these existing trees a 3" layer of mulch shall be added to cover the area within the tree fence.

10.11 SIGNAGE

10.11.1 - Building Name Signs - Exterior building name signs shall be provided and installed in accordance with the IDG and comply with the standards provided in the Department of the Army Technical Manual 5-807-10. The building name shall be coordinated with the Contracting Officer's representative.

10.11.2 - Warning Signs - New warning signs shall be provided in accordance with the IDG and shall comply with the standards provided in the Department of the Army Technical Manual 5-807-10. The sign wording, location, and number of warning signs shall be in accordance with the user requirements.

SECTION 01012

DESIGN AFTER AWARD

PART 1 GENERAL

The Contractor shall schedule the number and composition of the design submittal phases. All design submittals shall be in english units. Design submittals are required at the concept (10%), preliminary (50%) and final (95%) design stages and at the design complete stage (100%). The requirements of each design stage are listed hereinafter. The Contractor shall reflect the number and contents of the design submittals phases in the progress charts. As a maximum, the 10%, 50%, 95% and 100% complete design submittals shall be made in only one package for each of the fifteen (15) major categories listed in Paragraph, "Contents of Design Submittals," except the foundation design, utilities under the slab (all utilities together as one submittal), the Comprehensive Interior Design (CID), and long lead item submittals. These exceptions may be in addition to the 15 major submittals. More than one category may be combined in a submittal.

1.1 DESIGNER OF RECORD

The Contractor shall identify a Designer of Record ("DOR") for each area of design. All design disciplines shall be accounted for by listed, registered Designer(s) of Record. Each DOR shall be responsible for ensuring integrity of their design and design integration in all construction submittals and extensions to design developed by others, such as the constructor, subcontractors or suppliers. The DOR shall review and approve all construction submittals and extensions to design, in accordance with the procedures, described in Section 01330 SUBMITTALS PROCEDURES FOR DESIGN BUILD. Each DOR shall be responsible for the responses to "Requests for Information" ("RFI's"), applicable to their area of design responsibility. Each DOR shall stamp, sign, and date all design drawings under their responsible discipline at each design submittal stage and all submittals under their responsible discipline, in accordance with the submittal review procedures. The DOR shall sign-off on all applicable RFI responses.

1.2 CONSTRUCTOR'S ROLE DURING DESIGN

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities, as appropriate, if subcontracts have been awarded.

1.3 STAGES OF DESIGN SUBMITTALS

1.3.1 Concept Design Review Submittal (10%)

The review of this submittal is primarily to ensure that the Contractor is working towards a site layout that is acceptable to the Government and meets the site constraints imposed. The submittal shall consist of the following:

- a. Architectural Floor Plan.
- b. Architectural Elevations.
- c. Site Layout Plan: Show the proposed building footprint, proposed roads, and parking lots containing the required spaces; drawing shall be shown to scale on the provided survey drawing.

1.3.2 Preliminary Design Review Submittal (50%)

The review of this submittal is primarily to insure that the contract documents and design analysis are proceeding in a timely manner and that the design criteria is being correctly interpreted. The submittal shall consist of the following:

Design analysis, developed to 50%

50% complete drawings

CADD files of all drawings (2 copies)

Comprehensive Interior Design (CID) Package

Environmental permits, as required. When environmental permits are not required, the Contractor shall provide a statement with justification to that effect.

1.3.3 Final Design Review Submittal (95%)

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process. The Contractor shall submit the following documents for Final Design Review:

Applicable design analysis, developed to 95%

95% complete drawings

Draft specifications

Annotated 50% review comments

The Design Analysis submitted for Final Design Review shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Final Drawings and Specifications.

The Contract Drawings submitted for Final Design Review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his

coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments generated by the Preliminary design review. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings.

The Draft Specifications on all items of work submitted for Final Design Review shall consist of legible marked-up specification sections.

The Contractor may begin construction on portions of the work for which the Government has reviewed the Final Design Submission and has determined satisfactory for purposes of beginning construction. The Contracting Officer Representative (COR) will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

1.3.4 Design Complete Submittal

After the Final Design Review, the Contractor shall revise the Contract Documents by incorporating any comments generated during the Final Design Review and shall prepare final hard copy Contract Specifications. The Contractor shall submit the following documents for the design complete submittal:

Design analysis, in final 100% complete form

100% complete drawings

Final specifications

Annotated 95% review comments

CADD files of all drawings (2 copies)

Comprehensive Interior Design (CID) Package

Cals Files

The Contractor shall submit the Design Complete Submittal not later than 14 calendar days after the Government returns the annotated Final Design Review Submittal.

If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted with the Design Complete Submittal and are satisfactory to the Government.

1.4 QUANTITY OF DESIGN SUBMITTALS

1.4.1 General

The documents which the Contractor shall submit to the Government for each submittal are listed and generally described hereinafter. Unless otherwise indicated, the Contractor shall submit five (5) copies of each item to each

address required to be submitted at the Preliminary and Final Design Review Submittal stages. The quantities of this item are indicated with the description of the item. All drawings for review submittals shall be half-size blue lines. At the Design Complete Submittal, the Contractor shall also submit five (5) complete full size sets of drawings, five (5) complete half size sets and two copies of CADD files in AutoCADD Release 2000 format, five (5) sets of the specifications and two (2) copies on floppy disks in word.

1.5 MAILING OF DESIGN SUBMITTALS

Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract. The submittals shall be mailed to four (4) different addresses as directed by the Government.

Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

1.6 COORDINATION

1.1.6.1 Written Records

Provide a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish within five (5) working days copies to the Contracting Officer and all parties involved. The written record shall include subject, names of participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

1.6.2 Design Needs List

Throughout the life of his contract the Contractor shall furnish the COR a biweekly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item and remarks. The list will be maintained on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Copies of the list will be mailed to the Contracting Officer (COR).

1.7 GOVERNMENT REVIEW COMMENTS

Within 21 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly.

After receipt, the Government will be allowed thirty (30) days to review and comment on each 10% and 50% design submittal and twenty-one (21) days to review and comment on each 95% design submittal, except as noted below. For each design review submittal comments from the various design sections and from other concerned agencies involved in the review process will be provided using the on-line DrChecks Review Management System. The

contractor shall respond to the comments using the same system. The DrChecks Review Management System is available at the internet address "65.204.17.188". The contractor shall call Jean Swalley at 1-410-962-4153 for instructions for registering and using the system. The review will be for conformance with the technical requirements of the solicitation and the Successful Officer's (Contractor's) RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. The Contractor shall furnish disposition of all comments, in writing, with the next scheduled submittal. The Contractor is cautioned in that if he believes the action required by any comment exceeds the requirements of this contract, that he should take no action and notify the COR in writing immediately. Review conferences will be held for each design submittal at Ft. Belvoir, VA. The Contractor shall bring the personnel that developed the design submittal to the review conference. These conferences will take place the week after the twenty-one (21) day review period.

If a design submittal is over one (1) day late in accordance with the latest design schedule, the Government review period will be extended 7 days. The review conference will be held the week after the review new period. Submittals date revisions must be made in writing at least five (5) days prior to the effect submittal.

1.8 DESIGN ANALYSIS

1.8.1 Media and Format

Present the design analysis on 8-1/2-inch by 11-inch paper except that larger sheets may be used when required for graphs or other special calculation forms. All sheets shall be in reproducible form. The material may be typewritten, hand lettered, handwritten, or a combination thereof, provided it is legible. Side margins shall be 1-inch minimum to permit side binding and head to head printing. Bottom margins shall be 1-1/4-inches, with page numbers centered 1 inch from the bottom.

1.8.2 Organization

Assign the several parts and sheets of the design analysis a sequential binding number and bind them under a cover indicating the name of the facility and project number, if applicable. The title page shall carry the designation of the submittal being made. The complete design analysis presented for final review with the final drawings and specifications shall carry the designation "FINAL DESIGN ANALYSIS" on the title page.

1.8.3 Design Calculations

Design calculations are a part of the design analysis. When they are voluminous, bind them separately from the narrative part of the design analysis. Present the design calculations in a clean and legible form incorporating a title page and index for each volume. Furnish a table of contents, which shall be an index of the indices, when there is more than one volume. Identify the source of loading conditions, supplementary sketches, graphs, formulas, and references. Explain all assumptions and conclusions. Calculation sheets shall carry the names or initials of the computer and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

1.8.4 Automatic Data Processing Systems (ADPS)

When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input data and output summaries. When the computer output is large, it may be divided into volumes at logical division points. Precede each set of computer printouts by an index and by a description of the computation performed. If several sets of computations are submitted, they shall be accompanied by a general table of contents in addition to the individual indices. Preparation of the description which must accompany each set of ADPS printouts shall include the following:

Explain the design method, including assumptions, theories, and formulas.

Include applicable diagrams, adequately identified.

State exactly the computation performed by the computer.

Provide all necessary explanations of the computer printout format, symbols, and abbreviations.

Use adequate and consistent notation.

Provide sufficient information to permit manual checks of the results.

1.9 DRAWINGS

Prepare all drawings on Computer-Aided Design and Drafting (CADD) so that they are well-arranged and placed for ready reference and so that they present complete information. The Contractor shall prepare the drawings with the expectation that the Corps of Engineers, in the role of supervision, will be able to construct the facility without any additional assistance from the Contractor. Drawings shall be complete, unnecessary work such as duplicate views, notes and lettering, and repetition of details shall not be permitted. Do not show standard details not applicable to the project, and minimize unnecessary wasted space. Do not include details of standard products or items which are adequately covered by specifications on the drawings. Detail the drawings such that conformance with the RFP can be checked and to the extent that shop drawings can be checked. Do not use shop drawings as design drawings. The Contractor shall use standard Corps of Engineers title blocks and borders on all drawings. An index of drawings shall be included with each submittal. The COE will furnish the Contractor drawing numbers for inclusion in the title blocks of the drawings.

All CADD drawings shall be prepared in accordance with the applicable provisions of the "CENABEN Contract Clauses for CADD Deliverables".

The Contract Clauses, Standard border sheets, etc. are available at the NABEN web page: <http://www.en.nab.usace.army.mil/> or by request on CD ROM.

All drawings, specifications, notes, and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared". With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights or

to establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in the contract, the Contractor shall have the right to retain copies of all works beyond such period.

1.10 SPECIFICATIONS

The Contractor shall submit marked-up and final specifications as required.

The specifications shall be edited in SPECS-IN-TACT available from "<http://si.ksc.nasa.gov/specsintact>" and shall use Uniform Facilities Guide Specifications available from CCB at "<http://www.ccb.org/ufgs/ufgs.htm>". Edit the specifications for this project and submit in marked-up or redlined draft version at the Final Review submittal stage. If the design is based on a specific product, the specification shall consist of the important features of the product. The specification shall be detailed enough such that another product meeting the specification could be substituted and it would not adversely impact the project. After incorporation of comments, submit a final, design complete specification package. Submit one (1) original hard copy set of the specifications and a copy on floppy disks in pdf format (via Adobe Acrobat software - see <http://www.adobe.com/products/acrobat/>). Delete all marked-out or redlined text and type in all inserted text.

1.10.1 Submittal Register

Develop the submittal requirements during the design phase of the contract, by producing a Contractor Submittal Register during design. Attach a submittal register to each section of the specifications for the submittal requirements of that section. Prepare the Submittal Register on ENG Form 4288. Proper tagging of SPECS-IN-TACT prepared specifications allows this form to be generated at printing. The Contractor shall maintain a submittal register for the project in accordance with Section 01312 RESIDENT MANAGEMENT SYSTEM (RMS-W). The Contractor shall be responsible for listing all required submittals necessary to insure the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, test results, etc. that the Contractor shall submit for review and/or approval action during the life of the construction contract. The Contractor shall place all the Submittal Register pages in an appendix of the final specifications.

1.11 CONTENTS OF DESIGN SUBMITTALS

1.11.1 10% Submittals

The 10% design submittals shall contain as a minimum, the following:

1.11.1.1 Site Layout Plan

The Contractor shall provide a site layout plan showing the proposed layout of the building, roads, parking areas and retaining walls, etc. The plan shall be provided to scale with the survey provided to the Contractor. While a grading plan is not required at this stage, the submittal should as a minimum demonstrate the intended drainage patterns and the requirements for major cut and fill or retaining structures. The intent of this submission will be to sufficiently demonstrate that the required functions of the site can be met within the site constraints given, in a layout that is acceptable to the government. The submittal will include an explanation

of objectives and factors influencing siting decisions and a general overview of major site features planned, such as building orientation, drainage patterns, parking provisions, traffic circulation including delivery access, provisions for the handicapped and security requirements, etc.

1.11.1.2 Architectural Floor Plan

The Contractor shall provide a floorplan of the building showing the proposed room locations and entrances, including any required for delivery, etc.

1.11.1.3 Architectural Elevations

The Contractor shall provide building elevations showing the proposed finish materials, roof, windows and doors, unique architectural features, etc.

1.11.2 50% Design Submittals

The 50% design submittals shall contain as a minimum, the following:

1.11.2.1 Site Development

A. Design Analysis: A narrative description of siting requirements for roads, streets, parking facilities, earthwork, utilities and other related site aspects and how you plan to comply with the requirements. This is an excellent way for the designer to explain the rationale for the designs shown on the drawings. The submission of this document, prepared in accordance with ER 1110-345-700, usually eliminates numerous review comments. The design analysis should address all site aspects, and in particular storm water management and erosion and sedimentation control (designer should contact the State and local governments for their requirements) and the following:

1. Storm Drainage: Present the design of all new storm drainage and an analysis of the existing storm drainage to which the new system will be connected, if applicable. The storm drain design shall be based on the 10-year frequency event. Bioretention basin(s) are designed to capture the first 0.5 inches of runoff.
2. Roof Drainage: Design the roof drainage system in accordance with the National Plumbing Code. Collection of all roof drain downspouts which discharge on to paved areas in an underground piping system is preferred in order to avoid icing problems for pedestrians in winter weather. Coordinate the interior roof drainage system with all other design disciplines so as to avoid conflict of piping with the HVAC, sprinkler, and structural components.
3. Sanitary Sewers: Provide a description of existing and proposed sanitary sewer facilities and supporting design computations.
4. Water Service: Provide a description of existing and proposed water service for the proposed facility. Adequacy of existing system and additions required to properly service and provide fire protection for the new facility should be included.
5. Erosion and Sedimentation Control and Stormwater Management:

Include a description of erosion and sediment control and storm water management requirements and how they will be designed.

B. Drawings should include:

1. Survey Plan
2. Demolition Plan: Clearly indicate with a legend items to be removed, abandoned and relocated. An asbestos and lead paint survey should be conducted where demolition work is required.
3. Grading Plan: Information shown on this plan should include:
 - a. Existing topography including contours with sufficient spot elevations to establish existing ground surface in high and low areas. Existing buildings, roads, streets, parking areas, storm drains, sanitary sewers, water lines, gas lines, steam lines, etc., to remain from the survey. In addition, show and identify the survey base line and bench mark information.
 - b. New buildings, roads, parking facilities, etc.
 - c. New grading including the finish floor elevations for all new buildings and other structures with contours and/or spot elevations in sufficient detail to develop the drainage pattern as well as earthwork quantities.
 - d. Indicate locations of all inlets, storm and sanitary manholes, water valves, electric manholes and other utility structures visible at grade on the plan. Do not show any new utility lines serving the utilities.
 - e. Show storm water management detention areas.
4. Utilities Plan: This plan should show all existing and new utilities including but not limited to sanitary sewers, force mains, water lines, storm drainage, roof drains, gas lines, subdrainage, and foundation drains. All electrical and telephone lines are usually shown on the electrical utility plan. Show all new and existing buildings, roads, parking areas etc., but not contours or spot elevations. The plan should clearly present:
 - a. Existing and new sanitary sewers and force mains including manhole and cleanout locations. The size of all sanitary sewers and force mains should be shown. See TM 5-814-1 for technical guidance.
 - b. Existing and new water distribution and service lines with valves and fire hydrants indicated. Show sizes of all service and distribution lines. See TM-813-5 and TM 5-813-6 for technical guidance.
 - c. Existing and new storm drainage system and roof drainage with inlets, manholes, and headwalls indicated. The size of storm drains should be shown. See TM 5-820-4 for storm drainage technical guidance and the National Plumbing Code for roof drainage.
 - d. Show existing and new steam lines or gas line

distribution and service lines with valves.

e. All utilities which are to be abandoned, relocated, or removed and sanitary, water and storm drainage piping to be abandoned shall be capped or plugged with a minimum of 1 foot of concrete. If a demolition plan is included, demolition of utilities does not have to be shown on the utility plan.

5. Layout Plan: This plan should show all layout dimensions for all new features. Clearly identify all construction base lines used to layout and space the new work. The use of coordinates for locating new features is acceptable but not preferred over base line layouts. Depending upon the size of the project the layout data may be shown on the Utilities Plan. If the project has numerous utilities then prepare a separate layout plan to avoid congested drawings.
6. Erosion and Sedimentation Control Plan: This plan should show all temporary erosion and sediment control measures for the construction activity. The plan shall be developed in accordance with paragraph 6 of this document.

C. Outline Specifications: Appropriate guide specifications should be selected and listed for the aspects of the project. A complete list of current Corps of Engineers Guide Specifications is available from the Specification Section through the Design Team Leader.

1.11.2.2 Geotechnical

A geotechnical report and design analysis.

Anticipated permit requirements for water and wastewater features.

1.11.2.3 Landscape, Planting and Turfing

The landscape planting design narrative shall describe the analysis of existing site conditions, including an indication of existing plant materials that are to remain on the site. The statement of concept shall indicate specific site problems related to proposed development and the rationale for proposed plant locations. The narrative shall also include a list of suggested types and sizes of plant materials which are to be used, based upon the designated functional and visual criteria.

The concept drawings shall be prepared at a scale which corresponds with the site layout and grading plans and, likewise, shall include reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas, as needed, to clarify requirements. The proposed layout shall indicate shade trees, evergreen trees, flowering trees, shrub masses, etc., according to designated functional and visual locations of planting. A legend which also indicates sizes of plants recommended for each of the above categories shall be included. The drawings and all subsequent plans shall indicate existing and proposed buildings, paved areas, signs, light standards, transformers, dumpster areas, storm drainage system, and other structures and utilities. Bioretention basins will be landscaped per typical detail standards presented in Virginia Stormwater Management Handbook.

1.11.2.4 Architectural

Design narrative shall provide a summary of functional space relationships, as well as circulation. There shall also be a general statement for the rationale behind the major design decisions.

Plans shall indicate dimensions, columns lines, and detail references. Toilets and other specialized areas shall be drawn to 1/4" scale and shall show any needed interior features.

Finish schedule shall indicate material, finishes, colors and any special interior design features such as soffits, fascias, and lighting troughs, etc.

All required furniture and equipment shall be shown on the drawings with an equipment list.

List any special graphics requirements that will be provided.

Schedules shall be provided for both doors and windows. These schedules shall indicate sizes, types, and details for all items shown on floor plans.

Hardware sets using Builder's Hardware Manufacture's Association (BHMA) designations.

Composite floor plan showing all prewired work stations. Also show typical elevations of each type of work station.

Fire protection plans and analysis.

1.11.2.5 Structural Design

State the live loads to be used for design. Include roof and floor loads; wind loads, lateral earth pressure loads, seismic loads, etc., as applicable.

Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

Furnish calculations for all principal roof, floor, and foundation members.

This submittal shall include drawings showing roof and floor framing plans as applicable. Principal members will be shown on the plans. A foundation plan shall also be furnished showing main footings and grade beams where applicable. Where beam, column, and footing schedules are used, show schedules and fill in sufficient items to indicate method to be used. Show typical bar bending diagram if applicable. Typical sections shall be furnished for roof, floor, and foundation conditions. Structural drawings for proposals and submittals shall be separate from architectural drawings.

Provide the results of any computer used for structural design. All programs shall be widely accepted and commercially available. Complete documentation is required.

1.11.2.6 Plumbing

List all references used in the design including Government design documents and industry standards.

Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

Prepare detail calculations for systems such as sizing of waste and water piping; water heaters and pumps.

Indicate locations and general arrangement of plumbing fixtures and major equipment.

Include plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Piping layouts and risers should also include natural gas, and radon piping (as required).

Include equipment and fixture schedules with descriptions, capacities, locations, connection sizes and other information as required.

1.11.2.7 Fire Protection System

List all references used in the design including Government design documents and industry standards.

Classify each building in accordance with fire zone, building floor areas, and height and number of stories.

Discuss and provide description of required fire protection including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

Hydraulic calculations based on water flow test shall be prepared for each sprinkler system to ensure that flow and pressure requirements can be met with current water supply. See Water Supply and Sanitary Sewage.

Prepare a plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Provide the following types of information:

- a. The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.
- b. The location and coverage of any fire detection systems.
- c. The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.).
- d. The location of any other major fire protection equipment.
- e. Indicate any hazardous areas and their classification.
- f. Prepare a schedule describing the system with the following information: fire hazard and occupancy classifications, building construction type, GPM/ square foot sprinkler density, area of operation and other as required.

1.11.2.8 Heating, Ventilating, and Air Conditioning (HVAC)

Design analysis including 50% design calculations and psychometric.

Preliminary temperature control drawings and sequence of operation.

Preliminary equipment sizing, drawings, selections and schedules for major items, including equipment, ductwork, and piping plans and details.

HVAC system drawings for 50% design.

1.11.2.9 Interior Electrical System

A. Exterior, Electrical Site Drawings: Indicate all new and existing above ground and underground electrical, and telecommunication systems. This shall include cables, ducts, manholes, poles, exterior lighting fixtures and utility points of connection. Also, show primary and secondary electrical lines and all communication lines, transformer types and ratings, exterior lighting for streets, parking areas, and walks, and circuits to exterior mechanical equipment.

B. Interior: Provide the following interior electrical drawings.

1. Lighting Plan: Indicate the location and type of luminaires including exit signs and emergency lighting units.

2. Power Plan: Indicate the location and type of receptacles, panelboards, and other power related equipment.

3. Signal Plan: Indicate the location and type of telephone equipment, cable television equipment, public address system components, intrusion detection system and closed circuit television system components.

4. Grounding Plan: Provide a preliminary grounding plan.

5. Schedules: Provide lighting fixture schedules.

C. Design Analysis: Provide descriptions of all systems intended to be utilized as well as preliminary calculations for power, lighting, signal and other systems.

D. Specifications: Provide outline specifications for all systems.

E. Submittal to National Capital Planning Commission: Provide drawings to include Site Plan with Utilities, Storm Drainage Plan, Floor Plan, Building Elevations, and Landscape Plan. Submittal shall be coordinated with the Baltimore District Corps of Engineers.

1.11.3 95% DESIGN SUBMITTALS

The 95% Design Submittals shall contain, as a minimum, the following items for all submittals:

a. A complete set of construction documents plans and specifications at the same level of detail as if the project were to be bid including a complete list of equipment, fixtures and materials to be used. The final drawings are an extension of the reviewed 50% drawings and are to include the 50% comments. The additional 5% is to complete the drawings due to the final design review comments. All details shall be shown on the drawings.

b. The design analysis is an extension of the reviewed 50% design

analysis and supports and verifies that the design complies with the requirements of the project.

- c. Submit marked-up specifications. The specifications shall be coordinated with the drawings and describe in detail all items shown on the drawings.

1.11.3.1 Site Development

In addition to the items listed in the 50% submittal requirements, the following items should be addressed:

a. Design Analysis: Indicate all references and guidance used to develop the project such as data from Using Agency and Corps of Engineers technical manuals. The final design analysis should address all site aspects and in particular the following:

1. Storm Drainage: Describe storm drainage system and give basis for design referencing all criteria used. Include layout sketch of storm drainage areas with inlets and storm drainage piping shown. Calculate capacities of the various inlets selected for the project. Prepare storm drainage calculations indicating flow and velocity computations and include in the design analysis. Prepare and include roof drain computations. Draw a sketch of the roof areas showing drainage areas with locations and sizes of gutters, downspouts, and the roof drainage collector system. Include design calculations for the storm water management.
2. Water Service and Fire Protection: TM 5-812-1, TM 5-813-5 and TM 5-813-6. Describe proposed work, cite references, show all calculations including sketch of water system in vicinity of project. Be sure to note existing water storage facilities and capacities on Post and results of hydrant flow test.
3. Sanitary Sewers and Force Mains: TM 5-814-1. Describe proposed work, cite references, sketch of sanitary system, show all calculations including size of pumps, pump curves and strength of pipe selected.

b. Drawings: The final drawings are a continuation of the ones prepared for the concept submission.

1. Survey Plan.
2. Demolition: Indicate all items to be removed, abandoned, capped, plugged and relocated utilities.
3. Grading Plan: This plan must show new and existing contours and spot elevations in such detail that there will be no question regarding grading to provide positive drainage and indicated stormwater management facilities. Show inlets with top of frame elevations indicated, manholes, valves, hydrants, headwalls and all existing underground utilities. Do not show any new utility lines. Also, show any other features of work which will appear on the new ground surface.
4. Utilities Plan: Each existing and new utility must be clearly shown including building service connections and connections to existing lines. In addition, the locations of all new and

existing fire hydrants, valves, manholes, inlets, etc., are required. Show the sizes of existing and new lines with new inlet and manhole numbers but elevations are not shown. A complete legend is required. All new piping, inlets, manholes, hydrants, etc., must be located by dimension from buildings, streets, etc. All roof drain piping to storm drains must also be shown. All storm drain piping for stormwater management must be included. In addition, subdrain piping for paved areas must be shown if required.

5. Layout Plan: This is a complete layout showing existing and new buildings, roads, streets, walks, parking and service areas, etc. Do not show any new or existing contours or spot elevations. Clearly identify the baseline information from which all new facilities are to be located. Layout must be complete with all dimensions in feet and decimals of a foot. Stationing and curve data are required for road or street layout where applicable. Include a complete legend. The layout information may be combined with the utilities plan in those instances where the end result will not be too cluttered.
6. Profiles:
 - a. Profiles for storm drains, sanitary sewers, and force mains are always required in those instances where each utility crosses numerous new or existing utilities and the possibility for conflicts are likely to occur. Profiles for water lines may be required if there are many utility crossings along its alignment. Utility profiles must show:
 1. Existing and finished grade.
 2. Manholes, inlets, headwalls, etc., with numeric designations (corresponding to those shown on utility plan).
 3. Top and invert elevations.
 4. Size, length, and slopes of all lines.
 5. All existing and new utility crossings.
 6. Type of structures (i.e., Type "E" inlet, Std. MH, etc.) required at each junction.
 - b. Profiles for roads, streets, etc., must show:
 1. Existing and finished grade with all vertical alignment geometric data shown.
 2. All new and existing utility crossings.
 - c. All profiles should be drawn on compatible scales. 1" = 30', 40', or 50' horizontal corresponding to 1" = 3', 4' or 5' vertical. The vertical scale may vary where profiles traverse very steep topography.
7. Details: Standard details for storm drainage, water, sanitary sewer, and miscellaneous site features shall comply with the Department of Public Work's criteria such as Installation Design Guides or, if none are available, use the respective State highway and drainage standard details. The designer has the option to

develop any or all details for the project. Special details for specific situations will have to be prepared by the designer.

c. Specifications: Final technical specifications are prepared by editing Corps of Engineers Guide Specifications to reflect the specific features of the particular project being designed. Where Corps of Engineers specifications are not available, the AE shall prepare specifications to reflect required features.

1.11.3.2 EROSION AND SEDIMENTATION CONTROL, STORM WATER MANAGEMENT, AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT:

a. The Architect-Engineer is responsible for preparing both erosion and sedimentation control plans and stormwater management plans during design. Each shall be in accordance with the criteria of the governing agency at the project site. The Architect-Engineer shall, in the early stages of design, contact the state, county, or local authorities as to their particular requirements for each item. The Baltimore District's policy is to incorporate erosion and sedimentation control in all projects and stormwater management where required.

b. The Architect-Engineer shall submit the erosion and sedimentation control and stormwater management documentation to the Fort Belvoir Environmental Office, DPW.

c. It is the responsibility of the Architect-Engineer to make all submissions for review in a timely manner. Each should be scheduled to allow the reviewing authority to make comments and request resubmission.

d. The Architect-Engineer shall place all erosion and sedimentation control notes, directions, details, etc., on the design drawings. Specification NAB 01561, ENVIRONMENTAL PROTECTION, will refer to the plans and will provide any additional guidance or direction.

1.11.3.3 Water Supply and Sanitary Sewage

The designer is required to contact the Commonwealth of Virginia Department of Environmental Protection to verify the correct procedure to follow to obtain construction permits. The designer shall prepare all permit applications required to a "READY FOR SIGNATURE" condition and forward them to the Contracting Officer for appropriate signatures and submittal to the state. All contacts with state agencies shall be documented in writing and furnished to the Corps of Engineers at the 95% submittal.

1.11.3.4 Landscape, Planting and Turfing

Final design drawing(s) shall include a complete schedule of plant materials which indicates their botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Scale of drawing shall be prepared at 1" = 30'. Drawing shall correspond with the site layout and grading plans and reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas as needed, to clarify requirements. Final design drawings, indicating proposed plants by a (+) mark for the plant location and a circle which is scaled at approximately 2/3 the ultimate growth spread (diameter) of plants, shall also include a complete schedule of plant materials which indicates botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Final drawings shall also

include the basic details for installation of tree, shrub, and ground cover planting, as well as any other applicable details for clarification of specific project requirements.

1.11.3.5 Geotechnical

A final geotechnical report and design analysis.

1.11.3.6 Architectural

All architectural drawings shall be coordinated with the other engineering disciplines. Ensure that the plans are in compliance with the applicable codes. It will be the Contractor's responsibility to implement the comments generated from any design review submittal as well as verify the consistency between plans and specification. The evaluation of the Contractor's submittals shall be based on degree to which the submittal meet the requirements set forth in this document and the specifications.

Completed working drawings shall include plans, elevations, schedules, sections, and all other drawings needed to identify the materials and assembly for this project.

Prewired work station composite floor plans. Prewired work station typical elevations and component inventory. Prewired work station panel identification plan with electrical outlet placement including base feed.

Fire protection plans and analysis.

1.11.3.7 Structural Design

Furnish complete checked calculations for all structural members. Incorporate any changes required by comments on 50% Design Submittal.

Prior to this submittal, structural drawings shall be coordinated with all other design disciplines.

The final structural drawings shall contain the following information as a set of general notes:

- a. The allowable soil bearing value.
- b. The design stresses of structural materials used.
- c. The design live loads used in the design of various portions of the structures.
- d. The design wind speed.
- e. The seismic site classification " S_s ", " S_1 ", and "R" values used in design.

1.11.3.8 Final Plumbing Design Analysis

Final plumbing system drawings.

1.11.3.9 Fire Suppression System

Final fire suppression system design analysis including a file of the input data used in the computer program to design the fire suppression system.

1.11.3.10 Heating, Ventilating and Air Conditioning (HVAC)

Final design analysis of HVAC systems including final load calculations and psychometric analysis..

Final temperature control design drawings.

Final HVAC system drawings including sections of the mechanical room and congested areas where equipment, ductwork, piping is to be located.

Final equipment sizing/selections for major items.

1.11.3.11 Electrical

a. Exterior:

1. Electrical Site Plan: Indicate all new and existing above ground and underground electrical, and telecommunication systems. This shall include cables, ducts, manholes, poles, exterior lighting fixtures and utility points of connection. Also, show primary and secondary electrical lines and all communication lines, transformer types and ratings, exterior lighting for streets, parking areas, and walks, and circuits to exterior mechanical equipment.

2. Electrical Details: Provide details to clarify the above plan and to indicate the installation requirements.

b. Interior:

1. Lighting Plan: Indicate the location and type of luminaries including exit signs and emergency lighting units, switching and control devices, and wiring. Indicate circuit numbers adjacent to homeruns. Indicate the size of all grounding conductors.

2. Power Plan: Indicate the location and type of receptacles, panelboards, and other electrical equipment. Indicate circuit numbers adjacent to homeruns. Indicate the size of all grounding conductors.

3. Signal plan: Indicate the location and type of all outlets, backboards, public address components, intrusion detection components, and closed circuit television components.

4. Grounding plan: Provide a plan of the grounding system showing all points of connections, conductor sizes, burial depth and other information necessary to clearly delineate the system.

5. One Line Diagram: Provide a one-line diagram for the power distribution system.

6. Riser Diagrams: Provide riser diagrams for the telephone, cable television, public address, intrusion detection and closed circuit television systems. All conduits and enclosures shall be sized and indicated on these diagrams.

7. Schedules: Provide panelboard and lighting fixture schedules. Panelboard schedules shall include the designation, location,

mounting (flush or surface), number of phases and wires, voltage, ampacity and total connected load. Indicate the trip rating, frame size, interrupting rating and number of poles for each circuit breaker in the panelboards. List the circuit number, circuit description and load for each branch circuit.

8. Electrical Details: Provide details to clarify the above plans and to indicate the installation requirements.

c. Design Analysis:

1. Narrative: Provide a complete narrative of all systems to be utilized and describe any features that may not be readily apparent on the drawings and specifications.

2. Calculations: Calculations shall include short circuit analysis to indicate available short circuit at the transformer, panelboards, and circuit breakers; interior lighting; exterior lighting via point-to-point analysis; load analysis for justifying conductor and circuit breaker sizes; voltage drop analysis for all feeders and sub-feeders; and grounding calculations.

Specifications: All specifications shall be fully edited for all systems that will be utilized in the project.

1.12 Comprehensive INTERIOR DESIGN

1.12.1 Definition

The Comprehensive Interior Design (CID) shall involve the selection and sampling of all applied finishes and furnishings including material, color, texture and patterns necessary to complete the building's interior architectural features. The CID shall also include all prewired work station finishes and required drawings for prewired work stations. This information shall be submitted in 3" D-ring binders, 8-1/2" x 11" format.

Present architectural finish samples in an orderly arrangements according to like rooms/areas receiving like finishes. Each like room receiving like finishes will be noted as a Color Scheme. Each Color Scheme shall have a written description of material used. This written description shall use the same material abbreviations and notes that appear on the Room Finish Schedule and Legend in the contract drawings. Present prewired work station finishes on a color board separate from the architectural finishes.

Submit the SID binders concurrently with the architectural design submittals.

1.12.2 Preliminary Submittals

The Contractor shall submit three complete sets of the initial SID package at the 50% submittal stage. The design philosophy shall use a warm neutral background color with appropriate accent colors. All SID proposals shall be reviewed and approved by the Government. The Interior Designer shall revise the SID binders after each review and update the SID to satisfy review comments. Each submittal will follow this method of review until the Government approves the completed SID package.

1.12.3 Final Submittal

After approval of the Preliminary Submittal, the Contractor shall submit

three (3) complete sets of the approved and final Comprehensive Interior Design package. Once the Contractor has submitted the SID and the Government has approved the submittal, all materials, finishes, colors, textures and pattern submitted and approved for this project are then considered as part of the contract and the Contractor shall furnish all approved SID finishes. No deviations will be considered.

1.12.4 Format

Submit all SID information and samples on 8 1/2"x 11" modules with only one foldout. The maximum foldout width shall be approximately 25 inches. No foldouts are permitted on the top or bottom of the pages. Place the project title, base, architectural firm, page number and date on the bottom of each page or module.

The module shall support and anchor all samples. Anchor large or heavy samples with mechanical fasteners, velcro or double sided foam tape. Rubber cement or glue will not be acceptable.

Assemble the 8 1/2" x 11" pages and modules in a 3" D-ring binder. Holes for placement of the modules in the binder shall be 3/8" in diameter. Each binder shall be identified on the outside spine and front cover by title, project number, percentage phase and date.

Material and finish samples shall indicate true pattern, color and texture. Carpet samples shall be large enough to indicate a complete pattern or design.

Where paint manufacturers color names and numbers are used, indicate the finish of the paint such as gloss, semi-gloss, flat and so on.

Signage may include emblems, striping, letters, numbers and logos. The interior designer shall consider visual appearance, organization, location, structural supports (if required) and relation to other base graphics. Indicate on a separate signage sheet the location and message for all signage. Submit a sample of the signage material finish and color with the structural finishes.

No photographs or colored photocopies of materials will be accepted or approved.

The SID Binder shall include the following information at each design submittal in this order:

SEQUENCE OF SID SUBMITTAL

- a. Title page
- b. Table of contents
- c. Design objectives - A statement of design objectives explaining the interior design philosophy of the facility shall be provided in the SID. Design objectives and the proposed method of accomplishing the objectives. Shall cover, when applicable, energy efficiency, safety, health, maintenance, image, personal performance of occupants and functional flexibility.
- d. Interior floor plan

SEQUENCE OF SID SUBMITTAL

e. Interior sample finish boards

Scheme A

Scheme B

Scheme C

Example: All restrooms could be noted as color scheme "A", all general open office finishes could be noted as color scheme "B" and the main lobby could be noted as color scheme "C".

f. Room finish schedule

g. Signage

h. Signage plan

i. Prewired work station composite floor plans

j. Prewired work station typical - elevations and component inventory.

k. Prewired work station panel identification plan with electrical outlet placement including base feed

-- End of Section --

SECTION 01050

JOB CONDITIONS

08/99

PART 1 GENERAL

1.1 LAYOUT OF WORK

(NOV 1993) The Contractor shall layout its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at his own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them.

If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due the Contractor. (CENAB)

1.2 PHYSICAL DATA: (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation or conclusion drawn from the data or information by the Contractor. (CENAB)

1.2.1 Transportation Facilities

Highway Network: The principal access routes to Fort Belvoir are U.S. Route 1 (Jefferson Davis Highway) from the east and west, State Highway 611 (Telegraph Road) from the northeast, State Highway 7100 (Fairfax County Parkway) from the north, and State Highway 235 (Mount Vernon Memorial Highway) from the east. Minor access is provided by State Highway 613 (Beulah Road) and State Highway 622 (Pole Road).

Bus Service: Internal post mass transportation is limited to the use of post carryalls augmented by buses during peak demand periods. Presently, public bus service is provided by the Washington Metropolitan Area Transit Service.

Railroad: There is no railroad to Fort Belvoir.

1.2.2 Explorations

The physical conditions indicated on the drawings and in the specifications are the result of site investigations by borings and test pits. Foundation

exploration logs are shown on drawings. Whenever subsurface exploration logs are presented in the contract documents, soil test results are available for inspection in the Baltimore District, Corps of Engineers, Geotechnical Engineering Branch, Room 9250, City Crescent Building, 10 South Howard Street, Baltimore, Maryland. Soils and rock samples are also available for inspection; however, prospective bidders are required to call (410) 962-4045 between the hours of 9:00 a.m. and 3:30 p.m., Monday through Friday (excluding Federal Holidays), a minimum of 24 hours in advance to arrange a time and date for the inspection of the samples.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Shut Down Utility Services; G AR.

Prior approval for service/utility interruptions.

Advance Notice

When changes and/or relocations are required.

Checklist; GA|AR

A Risk Assessment for excavation and other work in the vicinity of utilities.

Control Records; FIO.

The recording for which all materials and equipment specified to be salvaged and turned over to the Government.

SD-07 Certificates

Operations Statement; FIO.

Written proof that the boilers have been properly installed and are operating satisfactorily in accordance with the manufacturer's instructions.

1.4 UTILITIES

1.4.1 Availability of Utilities Including Lavatory Facilities: (JUN 1980)

It shall be the responsibility of the Contractor to provide all utilities he may require during the entire life of the contract. He shall make his own investigation and determinations as to the availability and adequacy of utilities for his use for construction purposes and domestic consumption. He shall install and maintain all necessary supply lines, connections, piping, and meters if required, but only at such locations and in such

manner as approved by the Contracting Officer. Before final acceptance of work under this contract, all temporary supply lines, connections and piping installed by the Contractor shall be removed by him in a manner satisfactory to the Contracting Officer. (CENAB)

1.4.2 Interruption of Utilities: (1972)

a. No utility services shall be interrupted by the Contractor to make connections, to relocate, or for any purpose without approval of the Contracting Officer.

b. Request for permission to shut down utility services shall be submitted in writing to the Contracting Officer not less than 17 days prior to proposed date of interruption. The request shall give the following information:

c. Nature of Utility (Gas, L.P. or H.P., Water, Etc.)

d. Size of line and location of shutoff.

e. Buildings and services affected.

f. Hours and date of shutoff.

g. Estimated length of time service will be interrupted.

h. Services will not be shut off until receipt of approval of the proposed hours and date from the Contracting Officer.

i. Shutoffs which will cause interruption of Government work operations as determined by the Contracting Officer shall be accomplished during regular non-work hours or on non-work days of the Using Agency without any additional cost to the Government.

j. Operation of valves on water mains will be by Government personnel. Where shutoff of water lines interrupts service to fire hydrants or fire sprinkler systems, the Contractor shall arrange his operations and have sufficient material and personnel available to complete the work without undue delay or to restore service without delay in event of emergency.

k. The natural gas distribution system on Fort Belvoir has been privatized and owned and operated by the Washington Gas Company. Their personnel are the only ones authorized to operate this system. (CENAB)

1.4.3 Alterations to Utilities: (AUG 1968)

Where changes and relocations of utility lines are noted to be performed by others, the Contractor shall give the Contracting Officer in writing advance notice at least thirty days' of the time that the change or relocation is required. In the event that, after the expiration of thirty days after the receipt of such notice by the Contracting Officer, such utility lines have not been changed or relocated and delay is occasioned to the completion of the work under this contract, the Contractor will be

entitled to a time extension equal to the period of time lost by the Contractor after the expiration of said thirty day period. Any modification to existing or relocated lines required as a result of the Contractor's method of operation shall be made wholly at the Contractor's expense and no additional time will be allowed for delays incurred by such modifications. (CENAB)

1.4.4 Telephone Service

The following procedures apply to installation of commercial telephone service at Fort Belvoir, Virginia (all commercial telephone service is terminated in Building 246, Dial Central Office). Contractors shall contact the Bell Atlantic Telephone Company business office during regular business hours at (703)241-6000 and request telephone service. Verizon, the Fort Belvoir communications contractor, will provide the prospective customer with an estimate of costs to connect cables to the designated work site. In addition to the standard Bell Atlantic charges the Harris Corporation charges \$7.33 per phone line per month. There is also an additional one-time charge for Verizon to install the required wiring and telephone jacks based on the number of jacks and amount of wiring required.

For additional information contact the Fort Belvoir telephone control officer at (703)805-2120, which offers voice-mail for contractors. However, if contact with the telephone control officer is urgent, coordinate contact with the Contracting Officer.

1.4.5 Utility Markings

The Contractor shall contact the installation/DPW and the One-Call Service, a minimum of 14 days and 48 hours, respectively, prior to any excavation, the Post DPW and Miss Utility requesting utility location markings. The Contractor shall not proceed with any excavation until all utilities, including abandoned utilities, have been marked to the satisfaction of the Contracting Officer. Prior to requesting the marking of utilities, the Contractor shall stake out proposed excavations and limits of work with white lines ("White Lining"). It is the Contractor's responsibility to ensure that all permits (excavation or otherwise, including DPW permits) are current and up-to-date without expiration. In addition to the above requirements the Contractor shall:

- a) Visually survey and verify that all utility markings are consistent with existing appurtenances such as manholes, valve boxes, poles, pedestals, pad-mounted devices, gas meters, etc. prior to any excavation.
- b) Hand dig test holes to verify the depth and location of all utilities prior to any mechanical excavation within the limits of work. Other non-damaging methods for utility verification, as indicated in (d) below, may be considered subject to approval by the Contracting Officer. Also, verify that any abandoned utilities are not active.
- c) Preserve all utility markings for the duration of the project to the furthest extent possible.

- d) When excavation is performed within 2 feet of any utility line, a non-damaging method of excavation shall be used. The non-damaging method shall be hand digging. Other non-damaging methods, such as, soft digging, vacuum excavation, pneumatic hand tools, may be considered subject to approval by the Contracting Officer.
- e) Regardless of the type of excavation, the Contractor shall notify the Contracting Officer a minimum of 72 hours prior to any excavation activity. Failure to notify the Contracting Officer can result in the issuance of a "Stop Work" order, which shall not be justification for contract delay or time extension. The Government reserves the right to have personnel present on site during any type of excavation.
- f) The Contractor's Quality Control System Manager shall ensure that all excavation requirements herein are met at the time of the preparatory phase of quality control, and that the excavation procedures are reviewed during the preparatory phase meeting. This preparatory phase of control shall also establish and document contingency plans and actions to be followed in the event that existing utilities are damaged or interrupted. Locations of shut off or isolation devices along with other safety features shall be established and their operation reviewed.
- g) Any work other than excavation in the vicinity of a utility, that could damage or interrupt a utility, such as, exterior or interior work near transformers, power lines, poles, above ground gas lines, gas meters, etc., shall be done with extreme care. The Contractor shall specifically note during the preparatory phase of quality control, the construction techniques to be used to preclude damaging or interrupting any utility. This preparatory phase of control shall also establish and document contingency plans and actions to be followed in the event that existing utilities are damaged or interrupted. Locations of shut off or isolation devices along with other safety features shall be established and their operation reviewed.
- h) The Contractor shall complete a risk assessment, using the attached checklist, at least one week prior to the start of any excavation or other work in the vicinity of a utility. The risk assessment shall be submitted for government approval prior to any excavation or other work in the vicinity of a utility. A risk assessment shall be completed for each definable feature of work encountering utilities and shall include all utilities anticipated to be encountered.

1.5 DISPOSAL OF EXISTING MATERIAL AND EQUIPMENT: (DEC 1975)

All removed, dismantled or demolished material and/or equipment including rubble, scrap and debris not specified or indicated to be Government salvaged, reinstalled under this contract or otherwise retained for disposal on Government land will become the property of the Contractor and shall be promptly removed from the site and disposed of

by the Contractor at his own expense and responsibility. (CENAB)

1.6 COMPLIANCE WITH POST/BASE REGULATIONS: (JUL 1980)

The site of the work is on a military reservation and all rules and regulations issued by the Commanding Officer covering general safety, security, sanitary requirements, pollution control, traffic regulations and parking, shall be observed by the Contractor. Information regarding these requirements may be obtained by contacting the Contracting Officer, who will provide such information or assist in obtaining same from appropriate authorities. (MEMO)

1.7 MAINTENANCE OF ACCESS: (DEC 1975)

The Contractor shall not block passage through sidewalks, roads, alleys or other entranceways to the building during performance of work under this contract. In addition, the Contractor shall at all times maintain safe and clear passage through interior corridors and doorways to allow minimal disruption of normal activities within the building. No equipment or new materials are to be stored in the building except those items that are necessary for progress of the immediate work. All existing equipment, materials and debris removed during the work that are not to be reinstalled shall be removed daily by the Contractor from the building. (CENAB)

1.8 PROTECTION OF GOVERNMENT PROPERTY AND PERSONNEL: (DEC 1975)

1.8.1 Protection of Equipment

All existing Government owned equipment within the work area shall be protected by the Contractor from damage caused by construction operations. As a minimum, the Contractor shall cover all furniture, equipment and carpets in the work area with dust barriers and protect such items from any damage due to dust, vibration, water, heat or other conditions resulting from construction activities. Existing work damaged by construction operations shall be promptly repaired by the Contractor at his own expense.

1.8.2 Protection of Personnel

The Contractor shall protect occupants of the building by installing safety rails and/or barricades as applicable to prevent injury from unauthorized entry of personnel into work areas. Warning signs shall be erected as necessary to indicate Construction areas or hazardous zones. Work shall proceed in such manner as to prevent the undue spread of dust and flying particles.

1.8.3 Measures to Prevent Damage/Injury

The Contractor shall take such additional measures as may be directed by the Contracting Officer to prevent damage or injury to Government property or personnel. (CENAB)

1.9 STREET CLOSINGS: (MAY 1978)

When operations in connection with contract work necessitate the closing of streets, it shall be the Contractor's responsibility to arrange in advance with the Contracting Officer for such street closings and to provide appropriate barricades, signs, markers, flares, and other devices as may be required by the Contracting Officer's Representative for traffic guides and public safety. (CENAB)

1.10 ORDER OF WORK AND COORDINATION WITH OTHER CONTRACTORS: (FEB 1979)

Other Contractors maybe presently working in the same area. After award of this contract a meeting will be held with all contractor representatives and the Contracting Officer to develop a plan of work coordination. In case of disagreement regarding use of an area the decision of the Contracting Officer will control. (CENAB)

1.11 CONTRACTOR USE OF HEATING PLANT: (1968) (MOD 1975)

1.11.1 Utilization of the Installed Heating System

The Contractor may, at his option, utilize the heating system installed under this contract to provide space heating prior to the time of completion of the building. All fuel-oil for such space heating and for the required tests of heating equipment shall be furnished by the Contractor and shall be of the type and grade specified.

1.11.2 Operations Statement

The heating system shall be operated only by qualified personnel and shall be operated with all auxiliaries and in accordance with the manufacturer's instructions and good operating practice. Boilers shall not be operated for space heating until the Contracting Officer is furnished a written operations statement signed by the Contractor certifying that all water treating equipment, combustion control equipment, and the boiler safety controls have been properly installed and are operating satisfactorily. When a boiler is to be shut down for a period of more than 5 days, the combustion chamber and the fire sides of all boiler tubes shall be cleaned thoroughly immediately after shutdown. If at any time the Contracting Officer determines that the equipment is being improperly operated or maintained, the Contractor may be directed to discontinue its use.

1.11.3 Controlled Temperature

Heating systems shall be operated and controlled to prevent temperature in any room or space in the building from exceeding 90 degrees F (32 degrees C).

1.11.4 Renovating the New Heating System

The Contractor shall, prior to the time of final acceptance of all work under this contract, place the heating system and related equipment in a condition equal to new. The combustion chamber and fire side of all boiler tubes shall be cleaned, burner nozzles shall be cleaned and adjusted, and air filters, and pipeline strainers shall be replaced

or cleaned, as required. (CENAB)

1.12 ASBESTOS HANDLING AND REMOVAL (FEB 85)

Through site investigations, friable asbestos has not been found, however if asbestos is encountered, its testing, removal and disposal is covered in "CHANGES" clause of the Contract Clauses. (CENAB)

1.13 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

1.13.1 Procedure for Determination

This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance the contract clause entitled "Default: (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

1.13.2 Anticipated Adverse Weather Delays

The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6	6	6	8	6	6	7	5	3	5	5	5

1.13.3 Impact

Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred

in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph "Anticipated Adverse Weather Delays", above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

1.14 WORKING HOURS

WORKING HOURS: (DEC 93) It shall be the Contractors responsibility to obtain the working hours other than the normal five (5) day work week 08:00 am to 4:30 pm.

1.15 ACCIDENT REPORTS

The Contractor shall comply with accident reporting requirements as outlined in the Fort Belvoir Regulation 385-10, which will be furnished to the successful bidder by the Contracting Officer. All accident reports will be submitted to the Contracting Officer.

1.16 SPOIL OF WASTE MATERIALS

The Contractor is required to spoil all materials, except for dirt and vegetative covering, off the Fort Belvoir reservation at the Contractor's expense. (ATZA-FEE 23 MAY 77)

1.17 BORROW AREAS:

There are no borrow areas on the Fort Belvoir reservation. (ATZA-FEE 25 JAN 78)

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENT

RISK ASSESSMENT CHECKLIST

-- End of Section --

**RISK ASSESSMENT FOR
EXCAVATION AND OTHER WORK IN THE VICINITY OF UTILITIES**

PROJECT NAME: _____
CONTRACT NUMBER: _____
PROJECT INSTALLATION AND LOCATION: _____
PROPOSED EXCAVATION START DATE: _____

1. ☐ **ESTABLISH** EXCAVATION DETAILS AND DRAWINGS (check when completed)
2. ☐ PROPOSED EXCAVATION AREA MARKED ("white lining") (check when completed)
3. ☐ CONTACT APPROPRIATE ONE-CALL SERVICE **FOR PUBLIC UTILITIES:**
MD: Miss Utility 1-800-257-7777 N Y : New York City - Long Island One Call Center 1-800-272-4480
N. VA: Miss Utility 1-800-552-7777 PA: Pennsylvania One-Call System Incorporated 1-800-242-1776
VA: Miss Utility of VA 1-800-552-7001 DC: Miss Utility 1-800-257-7777
ONE-CALL NATIONAL REFERRAL CENTER: 1-888-258-0808

☐ **CONTACT INSTALLATION/OWNERS OF ALL PRIVATELY OWNED UTILITIES (NON ONE-CALL MEMBERS)**

4. ☐ DATE UTILITIES MARKED AND METHOD OF MARKING
ONE-CALL LOCATORS _____
OTHER LOCATORS _____
5. ☐ CONTACT APPROPRIATE DPW REPRESENTATIVES AND COMPLY WITH INSTALLATION PERMIT REQUIREMENTS: _____
6. ☐ UTILITIES IDENTIFIED ON-SITE:
☐ NONE ☐ ELECTRIC ☐ GAS ☐ WATER ☐ TELEPHONE ☐ CATV ☐ SEWER ☐ OTHER _____
7. ☐ LEVEL OF RISK: (Based upon personnel safety and consequences of utility outages.)
☐ SEVERE: Excavation required within the immediate vicinity (<2-ft) of a MARKED utility.
☐ MODERATE: Excav. required outside the immediate vicinity (> 2-ft) of MARKED utility.
☐ MINIMAL: Excavation required in an area with NO utilities.
8. ☐ EXISTING FACILITIES/UTILITIES IN VICINITY:
☐ NON-CRITICAL ☐ MISSION CRITICAL ☐ HIGH-PROFILE ☐ CEREMONIAL
☐ OTHER _____
☐ **CONSEQUENCES IF EXISTING UTILITIES ARE DAMAGED/DISRUPTED** _____
-
9. ☐ ENGINEERING CONTROLS REQUIRED:
☐ NONE ☐ HAND EXCAVATE TO LOCATE UTILITY ☐ EXCAVATE WITH DUE CARE
☐ OTHER _____
10. ☐ ADMINISTRATIVE CONTROLS REQUIRED:
☐ Notification of Contracting Officer's Representative, NOTIFIED on: _____
☐ Notification of Installation/DPW Representative, NOTIFIED on: _____
11. ☐ EMERGENCY NOTIFICATION AT INSTALLATION: POC & PHONE NUMBER _____

THE INFORMATION NOTED ABOVE IS ACCURATE AND THE WORK IS READY TO PROCEED
SIGNED and DATE _____ **CQC MANAGER**

12. ☐ ON-SITE GOVERNMENT REP. RECOMMENDATION FOR APPROVAL TO EXCAVATE:
☐ YES ☐ NO SIGNATURE AND DATE: _____
Comments: _____
13. ☐ AREA ENGINEER APPROVAL TO EXCAVATE:
☐ APPROVED ☐ DENIED SIGNATURE AND DATE: _____
Comments: _____
14. ☐ **CHIEF**, _____ **DIVISION** APPROVAL TO EXCAVATE:
☐ APPROVED ☐ DENIED SIGNATURE AND DATE: _____
Comments: _____

SECTION 01060

SAFETY
01/01

PART 1 GENERAL

1.1 APPLICABLE PUBLICATION

The publications listed below form a part of this specification and are referred to in the text by the basic designation only. All interim changes (changes made between publications of new editions) to the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, will be posted on the Headquarters Website. The date that it is posted shall become the official effective date of the change and contracts awarded after this date shall require to comply accordingly. The website location where these changes can be found is under the button entitled "Changes to EM", located at: "http://www.hq.usace.army.mil/soh/hqusace_soh.htm".

U.S. ARMY CORPS OF ENGINEERS:

EM 385-1-1	(3 Sep 1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Safety Supervisor; G AR.

A safety supervisor shall be responsible for overall supervision of accident prevention activities.

SD-07 Certificates

Language Certification

It is the Contractors responsibility to ensure that all employees understand the basic english language.

SD-09 Reports

Activity Phase Hazard Analysis Plan; G AR.

The addressing of the activity phase hazard analysis plan for each activity performed in a phase of work.

Outline Report

A report for each past activities review.

OSHA Log

A log shall be reported monthly for injuries.

1.3 GENERAL

The U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, and all subsequent revisions referred to in the Contract Clause ACCIDENT PREVENTION of this contract, are hereby supplemented as follows:

a. The Contractor shall designate an employee responsible for overall supervision of accident prevention activities. Such duties shall include: (1) assuring applicable safety requirements are (a) communicated to the workers in a language they understand (reference EM 385-1-1, September 1996, 01.A.04). It is the Contractor's responsibility to ascertain if there are workers on the job who do not speak and/or understand the English language, if such workers are employed by the prime contractor or subcontractors, at any tier, it is the prime contractor's responsibility to insure that all safety programs, signs, and tool box meetings are communicated to the workers in a language they understand, and that a bilingual employee is on site at all time. If the contractor contends that interpreters and/or bilingual signs are not required, language certification must be provided which verifies that all workers (whose native tongue is other than English) have a command of the English language sufficient to understand all direction, training and safety requirements, whether written or oral, and (b) incorporated in work methods, and (2) inspecting the work to ensure that safety measures and instructions are actually applied. The proposed safety supervisor name and qualifications shall be submitted in writing for approval to the Contracting Officer's Representative. This individual must have prior experience as a safety engineer or be able to demonstrate his/her familiarity and understanding of the safety requirements over a prescribed trial period. The safety engineer shall have the authority to act on behalf of the Contractor's general management to take whatever action is necessary to assure compliance with safety requirements. The safety supervisor is required to be on the site when work is being performed.

b. Prior to commencement of any work at a job site, a preconstruction safety meeting shall be held between the Contractor and the Corps of Engineers Area/Resident Engineer to discuss the Contractor's safety program and in particular to review the following submittals:

(1) Contracts Accident Prevention Plan: An acceptable accident prevention plan, written by the prime Contractor for the specific work and implementing in detail the pertinent requirements of EM 385-1-1, shall be submitted for Government approval.

(2) Activity Phase Hazard Analysis Plan: Prior to beginning each major phase of work, an activity hazard analysis (phase plan) shall be prepared by the Contractor for that phase of work and submitted to the Contracting Officer's Representative for approval. A phase is defined as an operation involving a type of work presenting hazards not experienced in previous operations or where a new subcontractor or work crew is to perform work. The analysis shall address the hazards for each activity performed in the phase and shall present the procedures and safeguards necessary to eliminate the hazards or reduce the risk to an acceptable level.

c. Subsequent jobsite safety meetings shall be held as follows:

(1) A safety meeting shall be held at least once a month for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures to anticipated hazards. An outline report of each monthly meeting shall be submitted to the Contracting Officer's Representative.

(2) At least one safety meeting shall be conducted weekly, or whenever new crews begin work, by the appropriate field supervisors or foremen for all workers. An outline report of the meeting giving date, time, attendance, subjects discussed and who conducted it shall be maintained and copies furnished the designated authority on request.

1.4 ACCIDENTS

Chargeable accidents are to be investigated by both Contractor personnel and the Contracting Officer.

1.4.1 Accident Reporting, ENG FORM 3394

Section 1, Paragraph 01.D, OF EM 385-1-1 and the Contract Clause entitled ACCIDENT PREVENTION are amended as follows: The prime Contractor shall report on Eng Form 3394, supplied by the Contracting Officer, all injuries to his employees or subcontractors that result in lost time and all damage to property and/or equipment in excess of \$2,000 per incident. Verbal notification of such accident shall be made to the Contracting Officer within 24 hours. A written report on the above noted form shall be submitted to the Contracting Officer within 72 hours following such accidents. The written report shall include the following:

a. A description of the circumstances leading up to the accident, the cause of the accident, and corrective measures taken to prevent recurrence.

b. A description of the injury and name and location of the medical facility giving examination and treatment.

c. A statement as to whether or not the employee was permitted to return to work after examination and treatment by the doctor, and if not, an estimate or statement of the number of days lost from work. If there have been days lost from work, state whether or not the employee has been re-examined and declared fit to resume work as of the date of the report.

1.4.2 OSHA Requirements

1.4.2.1 OSHA Log

A copy of the Contractor's OSHA Log of Injuries shall be forwarded monthly to the Contracting Officer.

1.4.2.2 OSHA Inspections

Contractors shall immediately notify the Contracting Officer when an OSHA Compliance official (Federal or State representative) presents his/her credentials and informs the Contractor that the workplace will be inspected for OSHA compliance. Contractors shall also notify the Contracting Officer upon determination that an exit interview will take place upon completion of the OSHA inspection. (NABSA OCT 05, 1976)

1.5 GOVERNMENT APPROVAL

Submittals shall be in accordance with Section 01330 SUBMITTAL PROCEDURES. All required submittals of items specified in this section shall be for information only, except for those items including, but not limited to, the following which shall be submitted for Government approval:

- a. Written designation of safety representative.
- b. Written project specific accident prevention plan.
- c. Written activity phase hazard analysis plan.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --

SECTION 01200

WARRANTY REQUIREMENT
01/01

PART 1 GENERAL

1.1 WARRANTY OF CONSTRUCTION

The Contractor shall warranty all materials and workmanship in accordance with Contract Clause (FAR 52.246-21), "WARRANTY OF CONSTRUCTION"

1.2 MANUFACTURER'S WARRANTY:

The Contractor shall provide manufacturer's warranties, when available, on all equipment for one year starting from the day of facility acceptance by the Government. Any warranty offered by the manufacturer for periods greater than one year or required by other sections of the specifications shall also be provided.

1.3 WARRANTY PAYMENT

Warranty work is a subsidiary portion of the contract work, and has a value to the Government of \$5,000. The Contractor will assign a value of that amount in the breakdown for progress payments mentioned in the Contract Clause (FAR 52.232-5) "Payments Under Fixed-Price Construction". If the Contractor fails to respond to warranty items as provided in paragraph CONTRACTOR'S RESPONSE TO WARRANTY SERVICE REQUIREMENTS below, the Government may elect to acquire warranty repairs through other sources and, if so, shall backcharge the Contractor for the cost of such repairs. Such backcharges shall be accomplished under the Contract Clause (FAR 52.243-4) "CHANGES" of the contract through a credit modification(s).

1.4 PERFORMANCE BOND:

The Contractor's Performance Bond will remain effective throughout the construction warranty period and warranty extensions.

1.4.1 Failure to Commence

In the event the Contractor or his designated representative(s) fail to commence and diligently pursue any work required under this clause, and in a manner pursuant to the requirements thereof, the Contracting Officer shall have the right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, may demand reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

1.5 PRE-WARRANTY CONFERENCE:

Prior to contract completion and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this specification. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be reviewed at this meeting. The Contractor shall provide names, addresses, and telephone numbers of all subcontractors, equipment suppliers, or manufacturers with specific designation of their area of responsibilities if they are to be contacted directly on warranty corrections. This point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. Minutes of the meeting will be prepared by the Government and signed by both, the Contractor and the Contracting Officer. The minutes shall become part of the contract file.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Samples

Sample Tags.

To identify the warranty for all Contractor and Government furnished equipment which the Contractor installs.

1.7 ADDITIONAL REQUIREMENTS

1.7.1 Roof Survey

The Contractor shall during the ninth (9) month of the warranty period conduct an infrared roof survey on any project involving a membrane roofing system. This survey will be conducted in accordance with ASTM C1153-90, "Standard Practice for the Location of Wet Insulation in Roofing Systems Using Infrared Imaging". Contractor shall be required to replace all damaged materials and to locate and repair sources of moisture penetration.

1.7.2 Equipment Warranty Identification Tags:

The Contractor shall provide warranty identification tags on all Contractor and Government furnished equipment which he has installed.

1.7.2.1 Format and Size for Tags

The tags shall be similar in format and size to the exhibits provided by

this specification, they shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation. etc. . These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Contractor furnished equipment that has differing warranties on its components will have each component tagged.

1.7.2.2 Sample Tags

Sample tags shall be filled out representative of how the Contractor will complete all other tags. These tags shall be submitted to the Government.

1.7.2.3 Tags for Warranted Equipment:

The tag for this equipment shall be similar to the following. Exact format and size will be as approved.

EQUIPMENT WARRANTY CONTRACTOR FURNISHED EQUIPMENT	
MFG: _____	MODEL NO.: _____
SERIAL NO.: _____	CONTRACT NO.: _____
CONTRACTORS NAME: _____	
CONTRACTOR WARRANTY EXPIRES: _____	
MFG WARRANTY(IES) EXPIRE: _____	

EQUIPMENT WARRANTY GOVERNMENT FURNISHED EQUIPMENT	
MFG: _____	MODEL NO.: _____
SERIAL NO.: _____	CONTRACT NO.: _____
DATE EQUIPMENT PLACED IN SERVICE: _____	
MFG WARRANTY(IES) EXPIRES: _____	

1.7.2.4 Execution

The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment. All tags shall be mechanically attached to the equipment as directed by the Contracting Officer.

1.7.2.5 Equipment Warranty Tag Replacement.

The contractor shall provide new tags on repaired or replaced equipment during the warranty period. The tag shall be identical to the original tag, except that the Contractor's warranty expiration date shall be updated to show the correct warranty expiration date.

1.8 CONTRACTOR'S RESPONSE TO WARRANTY SERVICE REQUIREMENTS.

1.8.1 Notification to Warranty Service Requirements

Following oral or written notification by authorized representative of the installation designated in writing by the Contracting Officer, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below.

1.8.1.1 Categories of Priorities

- a. First Priority Code 1: Perform on site inspection to evaluate situation, determine course of action, initiate work within 24 hours and work continuously to completion or relief.
- b. Second Priority Code 2: Perform on site inspection to evaluate situation, determine course of action, initiate work within 48 hours and work continuously to completion or relief.
- c. Third Priority Code 3: All other work to be initiated within 5 work days end work continuously to completion or relief.

1.8.1.2 Warranty Service Priority List

AIR TRAFFIC CONTROL AND AIR NAVIGATION SYSTEMS AND EQUIPMENT.

Code 1

AIR CONDITIONING SYSTEM:

Code 1:

- a. Hospital.
- b. Buildings with computer equipment.
- c. Commissary and Main PX.
- d. Clubs.
- e. Barracks, mess halls, BOQ/BEQ (entire building down).
- f. Troop medical and dental.

Code 2:

- a. Recreational support.
- b. Air conditioning leak in part of building, if causing damage.
- c. Admin buildings with ADP equipment not on priority list.

DOORS:

Code 1:

- a. Overhead doors not operational

ELECTRICAL:

Code 1:

- a. Power failure (entire area or any building operational after 1600 hours).
- b. Traffic control devices.
- c. Security lights.

Code 2:

- a. Power failure (no Power to a room or part of building),
- b. Receptacle and lights.
- c. Fire alarm systems.

GAS

Code 1

- a. Leaks and breaks.
- b. No gas to family housing unit or cantonment area.

HEAT

Code 1

- a. Hospital/Medical facilities
- b. Commissary and Main PX.
- c. Clubs.
- d. Area power failure affecting heat.

Code 2

- a. Medical storage.
- b. Barracks.

INTRUSION DETECTION SYSTEMS

Code 1

- a. Finance, PX and Commissary, and high security areas.

Code 2

- a. Systems other than those listed under Code 1.

KITCHEN EQUIPMENT

Code 1

- a. Dishwasher.
- b. All other equipment hampering preparation of a meal.

Code 2

- a. All other equipment not listed under Code 1.

PLUMBING

Code 2

- a. Flush valves.
- b. Fixture drain, supply line commode, or water pipe leaking.
- c. Commode leaking at base.

REFRIGERATION

Code 1

- a. Commissary.
- b. Mess Hall.
- c. Cold Storage.
- d. Hospital.
- e. Medical storage.

Code 2

- a. Mess hall - other than walk-in refrigerators and freezers.

ROOF LEAKS

Code 1

- a. Temporary repairs will be made where major damage to property is occurring.

Code 2

- a. Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

SWIMMING POOLS

Code 1

- a. Chlorine leaks or broken pumps.

TANK WASH RACKS (Bird Baths)

Code 1

- a. All systems which prevent tank wash.

WATER (Exterior)

Code 1

- a. Normal operation of water pump station.

Code 2

- No water to facility.

WATER, HOT (and STEAM)

Code 1

- a. Hospitals.
- b. Mess Halls.
- c. BOQ. BEQ. barracks (entire building).
- d. Medical and dental.

Code 2

- a. No hot water in portion of building listed under Code 1 (items a through c).

SPRINKLER SYSTEM

Code 1

- a. All sprinkler systems, valves, manholes, deluge systems, and air systems to sprinkler

1.8.2 Availability of Required Parts

Should parts be required to complete the work and the parts are not immediately available the Contractor shall have a maximum of 12 hours after arrival at the job site to provide authorized representative of the installation with firm written plan for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors plan shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION - NOT APPLICABLE

-- End of Section --

SECTION 01312A

QUALITY CONTROL SYSTEM (QCS)

08/01

PART 1 GENERAL

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320A, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01459, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior

to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

Software

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the

Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home

(main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.1.6 EM 385-1-1, Corps of Engineers Safety Manual and QCS Linkage

Upon request, the Contractor can obtain a copy of the current version of the Safety Manual, EM 385-1-1, on CD or visit ["http://www.usace.army.mil/inet/usace-docs/ent-manuals/em385-1-1/entire.pdf"](http://www.usace.army.mil/inet/usace-docs/ent-manuals/em385-1-1/entire.pdf). Data on the CD will be accessible through QCS, or in stand-alone mode.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The

Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01459, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01459, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay

activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320A, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320A PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting

Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

-- End of Section --

SECTION 01320

PROJECT SCHEDULE FOR DESIGN BUILD
02/02

PART 1 GENERAL

1.1 REFERENCE

The publications listed below form a part of the specification to the extent referenced. The publications are referenced in the text by basic designation only.

ENGINEERING REGULATIONS (ER)

ER 1-1-11 (1995) Progress, Schedules, and Network
Analysis Systems

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Initial Project Schedule; G AR.

Shows sequence of activities for work through the entire project and shall be at a resonable level of detail.

Preliminary Project Schedule; G AR.

Payment Purpose.

Periodic Schedule Updates; G AR.

Three copies of the schedules showing codes, values, categories, numbers, items, etc, as required.

Qualifications.

Documentation showing qualifications of personnel preparing schedule reports.

Narrative Report. Schedule Reports.

Three copies of the reports showing numbers, descriptions, dates, float, starts, finishes, durations, sequences, etc., as required.

1.3 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer's Representative for review with the Preliminary Project Schedule submission.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS a Project Schedule as described below shall be prepared. The Contractor shall be responsible for scheduling of all design, procurement and construction activities. Contractor management personnel shall actively participate in its development. Designers, subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

3.2 BASIC FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer's Representative to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer's Representative to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer's Representative and those revisions have not been included in the Project Schedule, then the Contracting Officer's Representative may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer's Representative.

3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project

Schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

3.3.2 Level of Detail Required

With the exception of the initial and preliminary schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer's Representative at the appropriate level of detail, as specified by the Contracting Officer's Representative, shall result in the disapproval of the schedule. The Contracting Officer's Representative will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

3.3.2.1 Activity Durations

Contractor submissions shall be required to follow the direction of the Contracting Officer's Representative regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use, is that less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 days.

3.3.2.2 Design and Permit Activities

The Contractor shall integrate design and permitting activities, including necessary conferences and follow-up actions and design package submission dates into the schedule.

3.3.2.3 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

3.3.2.4 Government Activities

Government and other agencies activities that could impact progress shall be shown. These activities include, but are not limited to: design reviews, submittal reviews, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

3.3.2.5 Workers Per Day

All activities shall have an estimate of the average number of workers per day that are expected to be used during the execution of the activity. If no workers are required for an activity, in the case of activities related to procurement, for example, then the activity shall be identified as using zero workers per day. The workers per day information for each activity

shall be identified by the Workers Per Day Code.

3.3.2.6 Responsibility

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, contractor work force, or government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.7 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number.

3.3.2.8 Category of Work

All Activities shall be identified in the project schedule according to the category of work which best describes the activity. Category of work refers, but is not limited to, the procurement chain of activities including such items as submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

3.3.2.9 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.3 Scheduled Project Completion

The schedule interval shall extend from Notice-to-Proceed to the contract completion date.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the Notice to Proceed (NTP) was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called "Start Project". The "Start Project" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float

on the critical path. The Contractor shall include as the last activity in the project schedule an activity call "End Project". The "End Project" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.3.3 Early Project Completion

In the event the project schedule shows completion, the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the Contracting Officer's Representative to evaluate the Contractor's ability to actually complete prior to the contract period.

3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in progress or completed activity and insure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer's Representative to evaluate Contractor progress for payment purposes.

3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) shall be allowed only by the case-by-case approval of the Contracting Officer's Representative. The Contracting Officer's Representative may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

3.3.7 Extended Non-Work Periods

Designation of Holidays to account for non-work periods of over 5 days shall not be allowed. Non-work periods of over 5 days shall be identified by addition of activities that represent the delays. Modifications to the logic of the project schedule shall be made to link those activities that may have been impacted by the delays to the newly added delay activities.

3.3.8 Negative Lags

Lag durations contained in the project schedule shall not have a negative

value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 60 calendar days shall be submitted for approval within 20 calendar days after Notice to Proceed is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 60 calendar days after Notice to Proceed.

3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within 40 calendar days after Notice to Proceed. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.

3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer's Representative or to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgement of the Contracting Officer's Representative or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.4 Standard Activity Coding Dictionary

The Contractor shall use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used.

3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted by the Contractor for the initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 Data Disks

Three data disks containing the project schedule shall be provided. Data on the disks shall adhere to the SDEF format specified in ER 1-1-11, Appendix A.

3.5.1.1 File Medium

Required data shall be submitted on 3.5 disks, formatted to hold 1.44 MB of data, under the MS-DOS Version 5. or 6.x, unless otherwise approved by the Contracting Officer.

3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number or person responsible for the schedule, and the MS-DOS version used to format the disk.

3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will ensure that the names of the files submitted are unique. The Contractor shall submit the file naming convention to the Contracting Officer for approval.

3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the 4 most critical paths, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken.

3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the Contracting Officer shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in progress or completed.

3.5.4.1 Activity Report

A list of all activities sorted according to activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

3.5.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the Notice to Proceed until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer's Representative at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. Activities shall be grouped by bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; complete and sum all bid items to provide a total project percent complete. The printed report shall contain, for each activity: Activity Number, Activity Description, Original Budgeted Amount, Total Quantity.

3.5.5 Network Diagram

The network diagram shall be required on the initial schedule submission and on monthly schedule update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity number or event number, description, duration, and estimated earned value shall be shown on the diagram.

3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 Critical Path

The critical path shall be clearly shown.

3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity

sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly onsite meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost-to-Date shall be subject to the approval of the Contracting Officer. As a minimum, the Contractor shall address the following items on an activity by activity basis, during each progress meeting.

3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed.

3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

3.6.3.3 Cost Completion

The earnings for each activity started. Payment will be based on earnings for each in-progress or completed activity. Payment for individual activities will not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

3.6.3.4 Logic Changes

All logic changes pertaining to Notice to Proceed on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities are those delays beyond the Contractors control such as strikes and unusual weather. Also included are delays encountered due to submittals, Government Activities, deliveries or work stoppage which makes re-planning the work necessary, and when the schedule does not represent the actual prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, he shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer's Representative may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

3.7.1 Justification of Delay

The project schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved with this request.

The Contracting Officer's Representative's determination as to the number of allowable days of contract extension, shall be based upon the project schedule updates in effect for the time period in question and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, shall not be a cause for a time extension to the contract completion date.

3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under 2 weeks based upon the most recent schedule update at the time of the Notice to Proceed or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number.
- b. A brief explanation of the causes of the change.
- c. An analysis of the overall impact of the changes proposed.
- d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

3.7.3 Additional Submission Requirements

For any requested time extension of over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's request.

3.8 DIRECTED CHANGES

If Notice to Proceed (NTP) is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer's Representative within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer's Representative prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer's Representative may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until the Contractor submits revisions, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer's Representative, then the Contractor shall advise the Contracting Officer's Representative within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor will continue to update their schedule with the Contracting Officer's Representative's revisions until a mutual agreement in the revisions may be made. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's Representative's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's Representative's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

-- End of Section --

SECTION 01330

SUBMITTAL PROCEDURES
05/02

PART 1 GENERAL

1.1 SUBMITTAL IDENTIFICATION (SD)

Submittals required are identified by SD numbers and titles as follows:

SD-01 Preconstruction Submittals

SD-02 Shop Drawings

SD-03 Product Data

SD-04 Samples

SD-05 Design Data

SD-07 Certificates

SD-10 Operation and Maintenance Data

SD-11 Closeout Submittals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Designer of Record Approved

Designer of Record approval is required for extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, or the completed design, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Contractor shall provide the Government the number of copies designated hereinafter of all Designer of Record approved submittals. The Government may review any or all Designer of Record approved submittals for conformance to the Solicitation and Accepted Proposal. The Government will review all submittals designated as deviating from the Solicitation or Accepted Proposal, as described below. Design submittals shall be in accordance with Section 01012 DESIGN AFTER AWARD. Generally, design submittals should be identified as SD-05 DESIGN DATA submittals.

1.2.2 Government Approved

Government approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer.

Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.3 Government Reviewed Design or Extension of Design

The Government will review all design submittals for conformance with the technical requirements of the solicitation. Section 01012 DESIGN AFTER AWARD covers the design submittal and review process in detail. Government review is required for extension of design construction submittals, used to define contract conformity, and for deviation from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the Designer of Record design documents do not include enough detail to ascertain contract compliance. The Government may, but is not required, to review extensions of design such as structural steel or reinforcement shop drawings.

1.2.4 Information Only

All submittals not requiring Designer of Record or Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. . After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer, obtain the Designer of Record's approval when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Designer of Record and Government approval. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all

required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.6 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and the Designer of Record, if applicable, and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.7 SUBMITTAL REGISTER

The Designer of Record shall develop a complete list of submittals during design. The Designer of Record shall identify required submittals in the specifications, and use the list to prepare the Submittal Register. The list may not be all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete the submittal register and submit it to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. The submit dates and need dates used in the submittal register shall be coordinated with dates in the Contractor prepared progress schedule. Updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

1.8 SCHEDULING

Submittals covering component items forming a system or items that are

interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.9 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms are included in the QCS software that the Contractor is required to use for this contract. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.10 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.10.1 Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the Preconstruction Conference.

1.10.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.11 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.12 GOVERNMENT APPROVED SUBMITTALS

If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

1.13 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any

item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. For design-build construction the Government will retain five (5) copies of information only submittals.

1.14 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR	
(Firm Name)	
_____ Approved	
_____ Approved with corrections as noted on submittal data and/or attached sheets(s).	
SIGNATURE:	_____
TITLE:	_____
DATE:	_____

For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record shall stamp and sign to certify that the submittal meets contract requirements.

-- End of Section --

**TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR
MANUFACTURER'S CERTIFICATES OF COMPLIANCE**

(Read instructions on the reverse side prior to initiating this form)

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instructions on the reverse side prior to initiating this form)</i>		DATE	TRANSMITTAL NO.
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS <i>(This section will be initiated by the contractor)</i>			
TO:	FROM:	CONTRACT NO.	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL

[illegible]

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated.

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

- 1. Section I will be initiated by the Contractor in the required number of copies.
- 2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
- 3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.
- 4. Submittals requiring expeditious handling will be submitted on a separate form.
- 5. Separate transmittal form will be used for submittals under separate sections of the specifications.
- 6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
- 7. Form is self-transmittal, letter of transmittal is not required.
- 8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
- 9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A	--	Approved as submitted.	E	--	Disapproved (See attached).
B	--	Approved, except as noted on drawings.	F	--	Receipt acknowledged.
C	--	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX	--	Receipt acknowledged, does not comply as noted with contract requirements.
D	--	Will be returned by separate correspondence.	G	--	Other (Specify)

- 10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

SUBMITTAL REGISTER

CONTRACT NO.
DACA31-03-B-0000

TITLE AND LOCATION
Kennels @ Ft. Belvoir, VA.

TITLE AND LOCATION						CONTRACTOR											
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C S E C T	DESCRIPTION	P A R A G R A P H	G O V T C L A S S I F I C A T I O N R	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR	REMARKS	
						SUBMIT (g)	BY (h)	MATERIAL NEEDED (i)	A C T I O N C O D E (j)	DATE OF ACTION (k)	DATE FWD TO APPR AUTH/ (l)	DATE FWD TO OTHER REVIEWER (m)	DATE RCD FROM OTH REVIEWER (n)	A C T I O N C O D E (o)			DATE OF ACTION (p)
(a)	(b)	(c)	ITEM SUBMITTED (d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01000	SD-01 Preconstruction Submittals														
			Title Evidence														
			Invoice Copies														
			Payment Evidence														
			Photographs	1.10													
			Personnel Data		G AR												
			Personnel List		G AR												
			Working Hours		G AR												
			Insurance Evidence	1.15.1	G AR												
			SD-03 Product Data														
			Cost or Pricing Data	1.6													
			Equipment Data	1.7													
			SD-05 Design Data														
			Progress Schedule	1.2	G AR												
			Modified Chart		G AR												
			SD-06 Test Reports														
			O and M Data	1.8													
			SD-10 Operation and Maintenance Data														
			Commissioning Activity for HVAC														
		01050	SD-01 Preconstruction Submittals														
			Shut Down Utility Services	1.4.2	G AR												
			Advance Notice	1.4.3													
			Checklist	1.4.5													
			GA AR														
			Control Records														

SUBMITTAL REGISTER

CONTRACT NO.
DACA31-03-B-0000

TITLE AND LOCATION Kennels @ Ft. Belvoir, VA.						CONTRACTOR											
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C S E C T	DESCRIPTION	P A R A G R A P H	C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR	REMARKS	
						SUBMIT (g)	BY (h)	BY (i)	A C T I O N C O D E	DATE OF A C T I O N (k)	DATE RCD FROM CONTR (l)	DATE FWD TO APPR AUTH/ (m)	DATE RCD FROM OTH REVIEWER (n)	A C T I O N C O D E			DATE OF A C T I O N (p)
(a)	(b)	(c)	ITEM SUBMITTED (d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01050	FIO														
			SD-07 Certificates														
			Operations Statement	1.11.2													
			FIO														
		01060	SD-01 Preconstruction Submittals														
			Safety Supervisor	1.3	G AR												
			SD-07 Certificates														
			Language Certification	1.3													
			SD-09 Manufacturer's Field														
			Reports														
			Activity Phase Hazard Analysis	1.3	G AR												
			Plan														
			Outline Report														
			OSHA Log														
		01200	SD-04 Samples														
			Sample Tags	1.7.2.2													
		01320	SD-01 Preconstruction Submittals														
			Initial Project Schedule		G AR												
			Preliminary Project Schedule		G AR												
			Periodic Schedule Updates		G AR												
			Qualifications	1.3													
			Narrative Report	3.5.2													
			Schedule Reports	3.5.4													
		01459	SD-01 Preconstruction Submittals														
			CQC Plan	3.2	G AR												
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.
DACA31-03-B-0000

TITLE AND LOCATION
Kennels @ Ft. Belvoir, VA.

A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C S E C T	DESCRIPTION	P A R A G R A P H	G O V C L A S S I F I C A T I O N C O D E	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR	REMARKS
						SUBMIT	BY APPROVAL NEEDED	BY MATERIAL NEEDED	A C T I O N C O D E	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	A C T I O N C O D E	DATE OF ACTION		
											(g)					(h)	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01459	CQC Plan	3.2	G AR												
			SD-07 Certificates														
			CQC Plan	3.2	G AR												
			SD-08 Manufacturer's Instructions														
			Change Notification														
			Phase Notification														
			Punchlist	3.9.1													
			SD-09 Manufacturer's Field														
			Reports														
			CQC Plan	3.2	G AR												
			Request		G AR												
			Tests	3.8.1													
			Test Reports	3.8.1													
			CQC Plan	3.2	G AR												
			CQC Mgr Qualification		G AR												
			CQC Mgr Qualification		G AR												
			CQC Plan	3.2	G AR												
			Minutes														
			CQC Mgr Qualification														
			Tests Performed	3.8.1													
			QC Records		G AR												
		01510	SD-02 Shop Drawings														
			Temporary Electrical Work	1.5	G AR												
		01563	SD-02 Shop Drawings														
			Facilities Location	1.11.6	G AR												
		01720	SD-11 Closeout Submittals														

SUBMITTAL REGISTER

CONTRACT NO.
DACA31-03-B-0000

TITLE AND LOCATION
Kennels @ Ft. Belvoir, VA.

CONTRACTOR

[illegible]

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

02/02

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number. The designations "AOK" and "LOK" are for administrative purposes and should not be used when ordering publications.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Ph: 610-832-9585
Fax: 610-832-9555
Internet: <http://www.astm.org>
AOK 5/01
LOK 3/01

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)
Yeon Bldg.
522 SW 5th Ave.
Suite 500
Portland, OR 97204-2122
Ph: 503-224-3930
Fax: 503-224-3934
Internet: <http://www.wwpa.org>
e-mail: info@wwpa.org
AOK 5/01
LOK 6/00

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)
1400 East Touhy Ave., Suite 470
Des Plaines, IL 60018

Ph: 847-299-5200 or 800-223-2301
Fax: 708-299-1286
Internet: <http://www.wdma.com>
e-mail: admin@wdma.com
AOK 5/01
LOK 6/00

WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION (WMPA)
507 First Street
Woodland, CA 95695
Ph: 916-661-9591
Fax: 916-661-9586
Internet: <http://www.wmpa.com>
AOK 5/01
LOK 6/00

-- End of Section --

SECTION 01459

CONTRACTOR QUALITY CONTROL - DESIGN BUILD CONSTRUCTION
02/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Price Schedule.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-06 Instructions

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-07 Schedules

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-08 Statements

Change Notification.

Any changes made by the Contractor.

Phase Notification.

The Government shall be notified in a specified amount of time in advance of beginning the preparatory control phase.

Punchlist.

Near the completion of all work, the CQC System Manager shall prepare a list of items which do not conform to the approved drawings and specifications.

SD-09 Reports

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

Request; G AR.

The requesting of specialized individuals in specific disciplines to perform quality control.

Tests.

Specified or required tests shall be done by the Contractor to verify that control measures are adequate.

Test Reports.

Results of tests taken..

SD-13 Certification

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

CQC Mgr Qualification; G AR.

The evaluation of the project to determine the level of CQC System Manager required.

SD-14 Samples

CQC Mgr Qualification; G AR.

The evaluation of the project to determine the level of CQC System Manager required.

SD-18 Records

CQC Plan; G AR.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

Minutes.

Prepared by the Government and signed by both the Contractor and the Contracting Officer and shall become a part of the contract file.

CQC Mgr Qualification.

The evaluation of the project to determine the level of CQC System Manager required.

Tests Performed.

An information copy provided directly to the Contracting Officer.

QC Records; G AR.

Provide factual evidence that required quality control activities and/or tests have been performed.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The site project superintendent in this context shall mean the highest level manager at the site responsible for the overall construction

activities, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.2 CQC PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Design and Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Design Quality Control (DQC) Plan

The Contractor's DQC Plan shall provide and maintain an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall review all documents. The same element that produced the product shall not perform the independent technical review (ITR). In addition, the DQC Plan shall incorporate the Lessons Learned Databases provided by the Government. The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major tasks including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project monitoring tool. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within seven calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. The completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

The DQC Plan shall be implemented by an assigned person with the Contractor's organization who shall be cognizant of and assure that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the

individual and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor, in writing, of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.3 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, designers of record, consultants, architect/engineer's (A/E's), fabricators, suppliers, and purchasing agents (The design QC Plan shall incorporate appropriate portions of these requirements, applicable to design activities):

- a. describe the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of construction work. The staff shall include a CQC System Manager who shall report to the site project superintendent.
- b. List the name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. Include a copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Furnish copies of these letters to the Government.
- d. Describe procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, designers of record, consultants, A/E's, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 - SUBMITTAL PROCEDURES.
- e. Describe control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (The Contracting Officer must approve Laboratory facilities.)
- f. Describe procedures for tracking preparatory, initial, and follow-up control phases for construction and control, verification, and acceptance tests including documentation.
- g. Describe procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that

identified deficiencies have been corrected.

- h. Describe reporting procedures, including proposed reporting formats. The Contractor shall utilize the Contractor Module of a Government-furnished software program titled "QCS" (Quality Control Systems). See paragraph, IMPLEMENTATION OF QUALITY CONTROL SYSTEM FOR CONTRACTOR QUALITY CONTROL OF CONTRACT, of this section for additional details.
- i. Include a list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting. This list may be developed as design progresses, but prior to construction of that feature.
- j. Furnish a list of tests to be performed as a part of the CQC Plan. The list shall give the test name, frequency, specification paragraph containing the test requirement, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required. Develop this list as design progresses, but prior to construction of that feature.
- k. QCS will assist in tracking and reporting for the above requirements. Sample forms generated from the software package shall be used as part of the CQC Plan.

3.2.4 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of design and/or construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction phases. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.5 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing a minimum of seven (7) calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Pre-design Conference, before start of design and/or construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control

system. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. The Government will prepare the minutes of the meeting. Both the Contractor and the Contracting Officer shall sign them. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 General

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor's CQC organization shall maintain a presence at the site at all times during progress of the work and which shall have complete authority to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the on site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC Manager.

3.4.3 CQC Personnel

In addition to CQC personnel previously specified, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager in the areas listed below. These personnel may be employees of the prime Contractor or subcontractors. The CQC specialists shall be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan or they may be assigned only CQC duties, at the Contractor's option. The Contractor may elect for a person

to perform one or more of the functions listed below, provided that the person meets the appropriate qualifications and has adequate time to properly cover the function.

Experience Matrix

<u>Area</u>	<u>Qualifications</u>
a. Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience
b. Mechanical	Graduate Mechanical Engineer with 2 yrs experience or person with 5 yrs related experience
c. Electrical	Graduate Electrical Engineer with 2 yrs related experience or person with 5 yrs related experience
d. Structural	Graduate Structural Engineer with 2 yrs experience or person with 5 yrs related experience
e. Architectural	Graduate Architect with 2 yrs experience or person with 5 yrs related experience
f. Environmental	Graduate Environmental Engineer with 3 yrs experience
g. Submittals	Submittal Clerk with 1 yr experience
h. Concrete, Pavements and Soils	Materials Technician with 2 yrs experience for the appropriate area
i. Testing, Adjusting and Balancing Personnel	Specialist must be a member of AABC or an experienced technician of the by the NEBB.
jk. Design QC	Registered Architect or Professional Engineer

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors" within 45 calendar days after NTP is a mandatory requirement for the position of the Quality Control Systems Manager. Certification is good for five (5) years at which time re-training is required. The Contractor's QC Systems Manager may be appointed and serve fully in that capacity pending certification. If the CQC Systems Manager fails to successfully complete the training, the Contractor should promptly appoint a new CQSM who shall then attend the next available course. The course is nine (9) hours long (1 day). The Construction Quality Management Course (CQMC) will be taught at least nine (9) times per year by the Baltimore District Corps of Engineers, at various locations around Baltimore and Washington, D.C., or at another site if conditions warrant. The CQMC cost will be borne by the Contractor and is one hundred and thirty five dollars (\$135.00) per course, per person. Payment shall be made by check payable to either sponsors of the course; Associated Builders and Contractors, Inc., (ABC) 14120 Park Long Court, Suite 111, Chantilly, Virginia 20151 (Phone: 703-968-6205), or to the Associated General Contractors of America (GCA), Maryland Chapter, 1301 York Road, Heaver Plaza, Suite 202, Lutherville, Maryland 21093 (Phone: 410-321-7870) prior to the start of the course. Reservations to attend the course should be made directly to the organization sponsoring the course they attend. The Contractor has forty-five (45) calendar days to attend the course after the issuance of the NTP. The Contractor shall contact the Contracting Officer upon award of the contract arrangements for the course.

3.4.5 Organizational Changes

The Contractor shall obtain Contracting Officer's acceptance before replacing any member of the CQC staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement. Upon acceptance of any changes, the Contractor shall revise the CQC plan to accurately reflect the changes. The CQC plan shall be kept current at all times during the life of the contract.

3.5 SUBMITTALS

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM FOR CQC OF CONTRACT

The government will use software entitled "Quality Control System For Windows ("QCS-W") to assist in its monitoring and administration of this contract. The Contractor shall utilize a Government-furnished contractor module of RMS, called "QCS" to record, maintain and submit various information to the Government throughout design and construction. This joint Government-Contractor use of RMS/QCS will facilitate the electronic

exchange of information and overall management of the contract. QCS provides the means for the contractor to input, track, and electronically share information with the government in the following areas:

Administration

Finances

Daily Progress Reports

Quality Control Reports

Submittal Monitoring

Scheduling

Import/Export of data

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. The Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on (3-1/2 inch) high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available. The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

Software

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

3.7 CONTROL CONSTRUCTION

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The CQC System Manager shall conduct at least three phases of control for each definable feature of construction work, as follows:

3.7.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. Review each paragraph of applicable specifications, reference codes and standards. The Contractor shall make available and maintain a copy, in the field, of the referenced codes and standards applicable to the work to be accomplished, until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.7.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.7.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to

the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.7.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.8 TESTS

3.8.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract. The Contractor shall include a copy of the laboratory's latest Corps of Engineers inspection report in the Quality Control Plan. The inspection report details the tests that the lab has been validated to perform under Corps of Engineers contracts.

3.8.2 Testing Laboratories

3.8.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.8.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$1,500.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.8.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.8.4 Furnishing or Transportation of Samples for Testing

Furnishing or Transportation of Samples for Testing: Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the following address:

Field Exploration Unit
or
Soils Laboratory Unit
(indicate which on shipping or mailing forms)
Fort McHenry Yard
Baltimore, Maryland 21230"

Coordination for each specified test, exact delivery location, and dates will be made through the Government's Area/Resident Office.

3.9 COMPLETION INSPECTION

3.9.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause in Section 00800 of the Solicitation entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punchlist of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by

which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.9.2 Pre-Final Inspection

The Government will perform pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.9.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.10 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers. If QCS is in the contract substitute this statement for the words "shall be on an acceptable form".: "The QCS module includes a quality control report format." The report shall be on an acceptable form, including, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.

- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government at the beginning of the next day after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, submit one report for every 7 days of no work and on the last day of a no work period. Account for all calendar days throughout the life of the contract. The first report following a day of no work shall be for that day only. The CQC System Manager shall sign and date all reports. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.11 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or

refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

02/2002

Contractor's Name:	_____
Address:	_____ _____
Phone Number:	_____

CONSTRUCTION QUALITY CONTROL REPORT

PROJECT NAME: _____
LOCATION: _____ DATE: _____
CONTRACT NUMBER: _____ REPORT NO.: _____

SUPERINTENDENT: _____			
TYPE OF WORKERS	NUMBER	TYPES OF CONSTRUCTION EQUIPMENT ON SITE	NUMBER
SUBCONTRACTORS			
COMPANY	RESPONSIBILITY	FOREMAN	NO. OF WORKERS
TOTALS			
NO. OF WORKERS TODAY	MANHOURS TODAY	MANHOURS FOR THIS PERIOD	
CONTRACT MATERIALS AND EQUIPMENT DELIVERED TO SITE:			
WEATHER: _____ SITE CONDITIONS: _____			
DID A DELAY OR WORK STOPPAGE OCCUR TODAY? _____ IF YES, EXPLAIN.			
HAS ANYTHING DEVELOPED IN THE WORK WHICH MAY LEAD TO A CHANGE OR FINDING OF FACT? _____ IF YES, EXPLAIN.			

DESCRIPTION OF ALL WORK PERFORMED TODAY
(LIST BY DEFINABLE FEATURES OF WORK)

PREPARATORY INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
ATTACH MINUTES OF MEETING AND LIST OF ALL ATTENDEES.

HAVE ALL REQUIRED SUBMITTALS AND SAMPLES OF CONSTRUCTION BEEN
APPROVED.

DO THE MATERIALS AND EQUIPMENT TO BE USED CONFORM TO THE SUBMITTALS?

HAS ALL PRELIMINARY WORK BEEN INSPECTED, TESTED, AND COMPLETED?

TEST REQUIRED AND INSPECTION TECHNIQUES TO BE EXECUTED TO PROVE
CONTRACT COMPLIANCE (INCLUDE BOTH EXPECTED AND ACTUAL RESULTS)

HAS A PHASE HAZARD ANALYSIS BEEN PERFORMED?

COMMENTS AND DEFICIENCIES NOTED AND CORRECTIVE ACTIONS TAKEN:

ALL INSTRUCTIONS RECEIVED FROM QA PERSONNEL AND ACTIONS TAKEN:

JOB SAFETY (INCLUDE MEETINGS HELD AND DEFICIENCIES NOTED WITH
CORRECTIVE ACTIONS):

INITIAL INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN:

FOLLOW-UP INSPECTION:

LIST ALL INSPECTIONS BY SUBJECT AND SPECIFICATION LOCATION.
COMMENTS AND/OR DEFICIENCIES NOTED AND CORRECTIVE ACTION TAKEN.

SIGNATURE: _____
QUALITY CONTROL REPRESENTATIVE/MANAGER

THE ABOVE REPORT IS COMPLETE AND CORRECT. ALL MATERIALS AND
EQUIPMENT USED AND ALL WORK PERFORMED DURING THIS REPORTING PERIOD
ARE IN COMPLIANCE WITH THE CONTRACT SPECIFICATIONS, AND SUBMITTALS,
EXCEPT AS NOTED ABOVE.

SIGNATURE: _____
CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

SECTION 01510

TEMPORARY CONSTRUCTION ITEMS

01/01

PART 1 GENERAL

1.1 General

The work covered by this section consists of furnishing all labor, materials, equipment, and services and performing all work required for or incidental to the items herein specified. No separate payment will be made for the construction and services required by this section, and all costs in connection therewith shall be included in the overall cost of the work unless specifically stated otherwise.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Temporary Electrical Work; G AR.

The Contractor shall submit a temporary power distribution sketch prior to the installation of any temporary power.

1.3 PROJECT SIGN: (AUG 1974)

A project sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 1, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

1.4 SAFETY SIGN (AUG 1974)

A safety sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 2, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. The data required by the sign shall be corrected daily, with light colored metallic or non-metallic numerals. Numerals, including mounting hardware, shall be subject to the approval of the Contracting Officer. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

1.5 TEMPORARY ELECTRICAL WORK: (APR 1962 REV JUL 2000)

Temporary electrical work shall be in accordance with Sections 7 and 11 of EM 385-1-1 U.S. Army Corps of Engineers Safety and Health Requirements Manual. The Contractor shall submit for approval a temporary power distribution sketch prior to the installation of any temporary power. The sketch shall include location, voltages, and means of protection for all temporary distribution system wiring and components to include lighting, receptacles, grounding, disconnecting means, and GFCIs. The Contractor shall test the temporary power system and devices for polarity, ground continuity, and ground resistance prior to the initial use and before use after any modification. The Contractor shall verify to the satisfaction of the Contracting Officer or his representative by a calibrated light meter that the minimum illumination required by Table 7-1 of the EM 385-1-1 is being provided. (CENAB-EN-DT)

1.6 GOVERNMENT FIELD OFFICE

1.6.1 Trailer-Type Mobile Office (Contractor's Option)

In lieu of constructing, maintaining and, at end of construction period, removing a temporary type field office, the Contractor may, at his option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds.

1.7 TEMPORARY PAVING PATCH

The Contractor shall place a temporary patch of cold mixed asphalt of adequate size and thickness immediately after utility trenches or other road or paved area openings are backfilled and compacted as specified in DIVISION II. The temporary patch shall be maintained by the Contractor until he permanently repairs the opening as delineated in DIVISION II. (SUGG NO. 75-183)

1.8 HAUL ROADS (1967)

The Contractor shall, at his expense, construct such access roads and haul roads as may be necessary for proper prosecution of the work under this contract. Haul roads shall be constructed in a workmanlike manner with suitable grades and widths. Sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide all necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control although optional shall be adequate to insure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval of the Contracting Officer. Upon completion of the work, haul roads as designated by the Contracting Officer shall be removed at the expense of the Contractor. Lighting shall be adequate to assure full and clear visibility for full width of haul and work areas during any night work operations. (CENAB)

1.9 BARRICADES

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazardous areas during both day and night. (CENAB)

PART 2 PRODUCT
NOT APPLICABLE

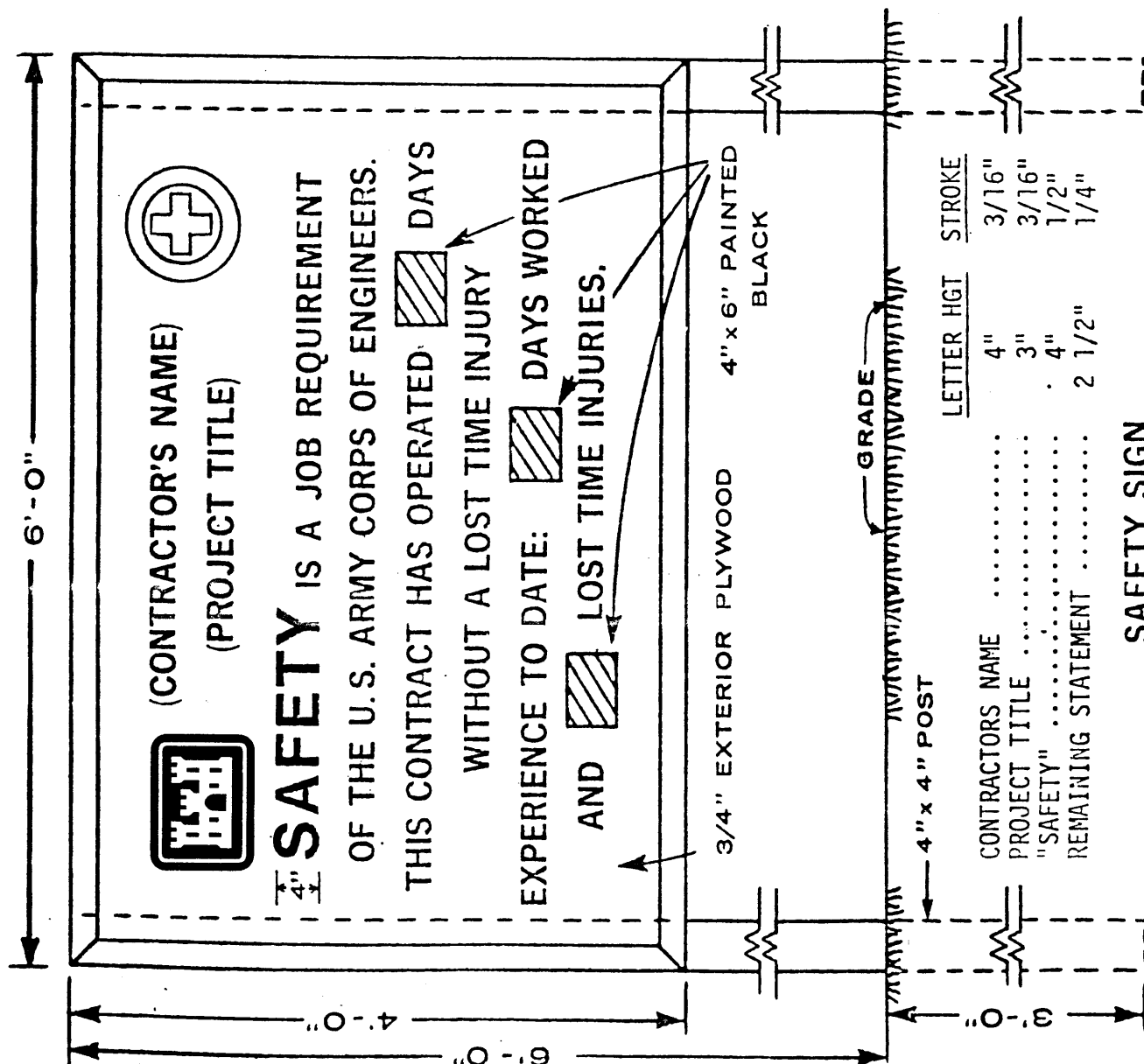
PART 3 EXECUTION
NOT APPLICABLE

ATTACHMENTS:

Attachment 1 Project Sign

Attachment 2 Safety Sign

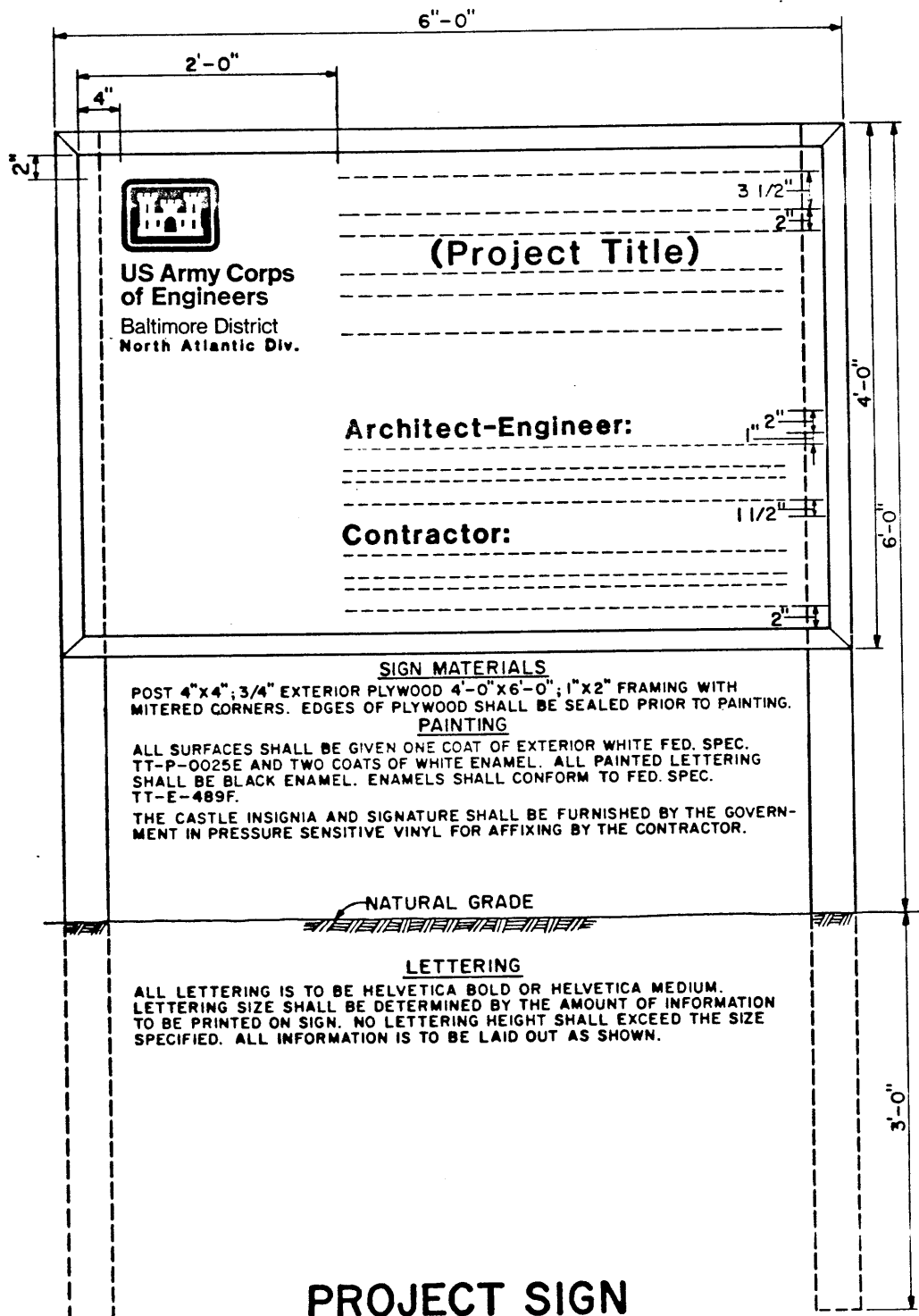
-- End of Section --



SIGN MATERIALS

POST 4"x4"; 3/4" EXTERIOR PLYWOOD 4'-0"x6'-0", 2"x2" FRAMING WITH MITERED CORNERS. FRAMING ENCLOSED EDGES OF PLYWOOD AND BE INSTALLED FLUSH ON BACK SIDE AND PROJECTING IN FRONT. OUTSIDE WHITE, HOUSE PAINT-2 COATS; BOTH SIDES AND EDGES; COLORS IN OIL FOR LETTERING - LAMP BLACK AND BULLETIN RED; CASTLE SHALL BE RED; LETTERING SHALL BE BLACK; THE CROSS SHALL BE GREEN

THE CASTLE INSIGNIA SHALL BE FURNISHED BY THE GOVERNMENT IN PRESSURE SENSITIVE VINYL FOR AFFIXING BY THE CONTRACTOR.



SECTION 01563

ENVIRONMENTAL PROTECTION
01/01

PART 1 GENERAL

The work covered by this section consists of furnishing all labor, material and equipment, and performing all work required for the prevention of environmental pollution during and as the result of construction operations under this contract except for those measures set forth in other Technical Provisions of these specifications. For the purpose of this specification environmental pollution is defined as any man made alteration to the existing environmental, either direct or indirect, that would adversely affects the natural quality and quantity of the environment for life forms.

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Facilities Location; G AR.

The location of Storage and Housing Facilities.

1.2 APPLICABLE REGULATIONS

In order to prevent, and to provide for abatement and control of any environmental pollution arising from construction activities, the contractor and all of their Subcontractors in the performance of this contract, shall comply with all applicable Federal, State, Ft Belvoir and local laws (i.e. Fairfax County Public Facilities Manual, Vol I & III on Tree Preservation and Planting; Erosion and Sediment Control; and Screening), and regulations concerning environmental pollution control and abatement, as well as the specific requirements stated else where in the contract specifications.

1.3 NOTIFICATION

a. The Directorate of Public Works, Environmental and Natural Resources Division (DPW ENVR) manages all actions having environmental impact or effects prior to undertaking such actions. The Contractor shall coordinate all contact with DPW ENVR through the Contracting Officer (CO) for the following:

1. Permit applications.
2. Request for testing of lead, asbestos, PCBs, or other substances,

and for soil or groundwater sampling and analysis. DPW ENVR has sole responsibility for conducting testing, sampling, and analysis at Fort Belvoir.

3. Report all oil and/or hazardous substance spills immediately to the DPW ENVR.
4. Undertaking construction, renovation or modification of any building, storage shed, parking area, or any other action having effects on any structure or facility at Fort Belvoir.
5. Undertaking any other action or activity which may have an impact on air, soil or water at or adjacent to Fort Belvoir.
6. Installing or removing aboveground and/or underground POL or hazardous waste treatment or storage tanks at Fort Belvoir.
7. Installing or removing of process vents to any existing tank or equipment which contains chemical or industrial product (including POL) or the waste products of chemical and industrial process.
8. Removing asbestos from any building occupied by any Fort Belvoir activity.
9. Maintaining hazardous waste records as required by DPW ENVR.
10. Coordination for all hazardous waste inspections by DPW ENVR and Federal and State regulators.
11. Accumulation of hazardous waste at authorized points.

b. CONTRACTING OFFICER: The Contracting Officer will notify the Contractor in writing of any non-compliance with the foregoing provisions and the action to be taken. The Contractor shall after receipt of such notice, immediately take appropriate corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it was later determined that the Contractor was in compliance. The Contractor is responsible for all environmental damages beyond the scope of the contract.

1.4 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

1.5 DPW APPROVAL

The Contractor and subcontractor shall keep the Contracting Officer and DPW ENVR notified of any changes in hazardous waste stream generated by/or

during construction, changes of hazardous material/waste management personnel on work sites, treatment of waste permitted under the Fort Belvoir Hazardous Waste permit, and for disposal of hazardous materials which have continuing useful life, as required by AR 200-1.

All proposed tree and shrub removals as well as construction and excavation activities that may impact the growth and survival of trees are to be approved by the DPW. Dogwood, holly, redbud, and mountain laurel are to be left standing on utility rights-of-way unless an exception to this policy is specifically approved by the DPW.

1.6 IMPLEMENTATION

The contractor is required to submit to the Contracting Officer for approval, an erosion and sedimentation control plan (consisting of both a narrative report and drawings) for this project prior to any construction. This plan shall include any proposed temporary excavation and embankment for roads, plant, an/or work areas. Drawings prepared by the Contractor shall conform to erosion and sedimentation control requirements shown in Public Facilities Manual for Fairfax County, Virginia. The Contractor shall engage the services of a qualified Environmental Engineer to prepare the above referenced erosion and sedimentation control plan.

1.7 PROTECTION OF WATER RESOURCES

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acid construction wastes or other harmful materials. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project area.

1.8 EROSION CONTROL

The Contractor shall comply with the following requirements:

- (1) No disturbed area will be left denuded for more than 90 calendar days unless otherwise authorized by the Contracting Officer.
- (2) All erosion and sediment control measures are to be placed prior to or as the first step in grading.
- (3) All storm and sanitary sewer lines not in streets or paved areas are to be mulched and seeded within 15 days after backfill. No more than 500 feet are to be open at any one time.
- (4) Electric power, telephone, and gas supply trenches are to be compacted, seeded and mulched within 15 days after backfill.
- (5) All temporary earth berms, diversions, and sediment dams are to be mulched and seeded for temporary vegetative cover within 10 days after grading. Straw or hay mulch is required. The same applies to all soil stockpiles.

- (6) During construction, all storm sewer inlets will be protected by sediment and traps, maintained and modified as required by construction progress.
- (7) Any disturbed area not covered by item 7 (1) above and not paved, sodded or built upon by 1 November, or disturbed after that date, is to be seeded within 15 days with oats, abuzzi rye, or equivalent and mulched with hay or straw mulch at the rate of two tons per acre (4,500 kg per hectare).
- (8) Structural measures such as berms, dikes, traps, basins, etc., will be installed and stabilized according to this plan prior to any other grading, clearing, or disturbance of the existing surface of the site.
- (9) All structural sediment control measures are to remain in place until permission for their removal has been obtained from the Contracting Officer.

1.9 BURNING

Burning or use of explosives shall not be permitted.

1.10 DUST CONTROL

The Contractor shall maintain all work areas free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1.11 PROTECTION OF LAND RESOURCES

1.11.1 General

It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES:

1.11.2 Protection of Trees Retained

- a. Fort Belvoirs Policy: It is the policy of Fort Belvoir to promote site planning techniques and construction practices that maximize

retention and protection of existing trees before considering removal. Tree protection measures for retained trees will be required for all new construction.

- b. Contractors Responsibility: The Contractor shall be responsible for the protection of the tops, trunks and roots of all existing trees that are to be retained on the site. After trees have been removed along the limits of clearing, protective devices shall be installed as soon as possible. Protection shall be maintained until all work in the vicinity has been completed and shall not be released without the consent of the Contracting Officer. If the Contracting Officer knows that the protective devices are insufficient to protect the trees retained on the site, additional protection devices shall be installed to insure adequate protection.

1.11.3 Stockpiling and Storing

- a. Heavy equipment, vehicular traffic, or stockpiling of any materials shall not be permitted within the drip line of trees to be retained.
- b. No toxic materials shall be stored within 100 foot from the drip line of trees to be retained.

1.11.3.1 Confined Area

Except in areas marked on the plans to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Contracting Officer. Where such special emergency use is permitted, the contractor shall first adequately wrap the trunk with a sufficient thickness of burlap or rugs over which softwood cleats shall be tied before any tied before any rope, cable, or wire is placed.

1.11.3.2 Tree Defacing

No protective devices, signs, utility boxes or other objects shall be nailed to trees to be retained on the site.

1.11.3.3 Tree Replacements

Two new trees are to be planted for each tree removed through new construction on Fort Belvoir. Requirements for size, species, and location of new plantings will depend on the individual situation. Replacements may include landscape plantings for improved grounds as well as tree seedlings for reforestation. The DPW will make this assessment and recommendation. New planting plans must be approved in writing by the DPW prior to removal of any trees.

1.11.3.4 Devices

Any device may be used which will effectively protect the roots, trunk and

top of the trees retained on the site. The less formidable the barrier used, the greater the care that must be taken to avoid inflicting damage. Personnel working in the vicinity of the trees must be instructed to honor the protective devices. The devices for protection outlined below are suggested devices only and are not intended to exclude the use of other devices, subject to the Contracting Officer approval, which will protect the trees retained.

- a. Snow Fence: Standard 4 foot high snow fence shall be placed at the drip line on posts mounted 6 feet apart.
- b. Board Fencing: Consists of 4 x 4 posts set securely in the ground and protruding at least 5 feet above the ground shall be placed at the drip line with a minimum of two horizontal boards between each post.
- c. Posts, String and Flagging: Posts with a minimum size of 2 x 2 or 2 inch in diameter set securely in the ground and protruding at least 5 feet above the ground shall be placed at the drip line with two rows of string at least 2 feet apart running between each post with colored surveyor's flagging tied securely to the string at 5 feet intervals.

1.11.4 Restoration of Landscape Damage

Any trees or other landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under requirements for clearing and grubbing. All scars made on trees not designated on the plans to be removed by equipment, construction operations, or by the removal of limbs larger than 1-inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where tree climbing is necessary, the use of climbing spurs will not be permitted. The use of climbing ropes shall be required by the Contracting Officer where deemed necessary for safety. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Contracting Officer, shall be immediately removed and replaced with a nursery -grown tree of the same species. Replacement trees shall measure no less than 2 inches in diameter at 6 inches above the ground level.

1.11.5 Technical Advice

Technical advice and additional information on tree preservation and planting can be obtained by contacting the Baltimore District Corps of Engineers.

1.11.6 Facilities Location

The location on Government property of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be upon cleared portions of the job site or areas to be cleared, and shall require written approval of the Contracting Officer. Where buildings or platforms are constructed on sidehills, the Contracting Officer may require cribbing to be used to obtain level foundations. Benching or leveling of earth may not be allowed, depending on the location of the proposed facility.

1.11.7 Post-construction Cleanup or Obliteration

The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction operations as directed by the Contracting Officer.

It is anticipated that excavation, filling and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be graded and filled as required, and forest litter, humus or topsoil or combination thereof shall be spread to a depth of approximately 6 inches (152.4 mm) over the entire area and the entire area seeded. Restoration to original contours is required unless approval is given by Contracting Officer.

1.12 PROTECTION OF FISH AND WILDLIFE

The Contractor shall at all times perform all work and take such steps required to prevent any interference or disturbance to fish and wildlife. The Contractor will not be permitted to alter water flows or otherwise disturb native habitat adjacent to the project area which, in the opinion of the Contracting Officer, are critical to fish or wildlife. Fouling or polluting of water will not be permitted.

1.13 MAINTENANCE OR POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

During the life of this contract the Contractor shall maintain all facilities constructed for pollution control under this contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

1.14 MEASUREMENT AND PAYMENT

Except as noted in paragraph, PERFORMANCE AND PAYMENT BOND REIMBURSEMENT above, no separate measurement and payment will be made for the work performed in this Section 01561, ENVIRONMENTAL PROTECTION specified herein and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor, and shall be included in the overall cost of the work.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --

SECTION 01720

AS-BUILT DRAWINGS - CADD
01/01

PART 1 GENERAL

1.1 Preparation

This section covers the preparation of as-built drawings complete, as a requirement of this contract. The terms "drawings," "contract drawings," "drawing files," and "final as-built drawings" refer to a set of computer-aided design and drafting (CADD) contract drawings in electronic file format which are to be used for as-built drawings.

1.2 PROGRESS MARKED UP AS-BUILT PRINTS

The Contractor shall revise one set of paper prints to show the as-built conditions during the prosecution of the project. These as-built marked prints shall be kept current and available on the jobsite at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and a responsible representative of the construction Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings and will continue the monthly deduction of the 10% retainage even after 50% completion of the contract. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and a representative of the Contractor regarding the accuracy and completeness of updated drawings. The prints shall show the following information, but not be limited thereto:

1.2.1 Location and Description

The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

1.2.2 Location and Dimensions

The location and dimensions of any changes within the building or structure.

1.2.3 Corrections

Correct grade, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

Correct elevations if changes were made in site grading.

1.2.4 Changes

Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

The topography, invert elevations and grades of all drainage installed or affected as a part of the project construction.

All changes or modifications which result from the final inspection.

1.2.5 Options

Where contract drawings or specifications present options, only the option selected for construction shall be shown on the as-built prints.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Progress Prints; G AR.

Preparation of two copies of as-builts from the Contractor to the Contracting Officer for review and approval.

Final Requirements; G AR.

CADD Files.

Shall consist of two sets of completed as-built contract drawings on separate media consisting of both CADD files (compatible with the Using Agency/Sponsor's system on electronic storage media identical to that supplied by the Government) and a CALS Type 1, Group 4, Raster Image File of each contract drawing.

Receipt by the Contractor of the approved marked as-built prints.

1.4 PRELIMINARY SUBMITTAL

At the time of final inspection, the Contractor shall prepare two copies of the progress as-built prints and these shall be delivered to the Contracting Officer for review and approval. These as-built marked prints shall be neat, legible and accurate. The review by Government personnel

will be expedited to the maximum extent possible. Upon approval, one copy of the as-built marked prints will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the as-built marked prints are found to contain errors and/or omissions, they shall be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the as-built marked prints to the Contracting Officer within ten (10) calendar days.

1.5 DRAWING PREPARATION

1.5.1 As-Built Drawings Approval

Upon approval of the as-built prints submitted, the Contractor will be furnished by the Government one set of contract drawings, with all amendments incorporated, to be used for as-built drawings. These contract drawings will be furnished on CD-ROM. These drawings shall be modified as may be necessary to correctly show all the features of the project as it has been constructed by bringing the contract set into agreement with the approved as-built prints, adding such additional drawings as may be necessary. These drawings are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.5.2 Proficient Personnel

Only personnel proficient in the preparation of engineering CADD drawings to standards satisfactory and acceptable to the Government shall be employed to modify the contract drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. The title block and drawing border to be used for any new as-built drawings shall be identical to that used on the contract drawings. All additions and corrections to the contract drawings shall be accomplished using CADD media files supplied by the Government. These contract drawings will already be compatible with the Using Agency/Sponsor's system when received by the Contractor. The Using Agency/Sponsor uses AutoCAD Release 2000 CADD software system. The media files will be supplied on ISO 9660 Format CD-ROM. The Contractor is responsible for providing all program files and hardware necessary to prepare as-built drawings. The Contracting Officer will review all as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

1.5.3 Final Revisions

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the

General Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "As-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. All original contract drawings shall be dated in the revision block (SEE ATTACHMENT 12) located at the end of this section.

1.6 FINAL REQUIREMENTS

After receipt by the Contractor of the approved marked as-built prints and the original contract drawing files the Contractor will, within 30 days for contracts less than \$5 million or 60 days for contracts \$5 million and above, make the final as-built submittal. The submittal shall consist of the following:

a) Two sets of the as-built contract drawings on separate CD's (ISO 9660 Format CD-ROM) consisting of the updated CADD files and a CALS Type 1 Group 4 Raster Image File of each contract drawing plate. The CALS files shall be exact duplicates of the full sized plots of the completed as-built contract drawings at a resolution of 400 dpi and may be either plotted to CALS files directly from the CADD files, or scanned to file from the prints.

b) Two sets of full size paper prints (plots) of the completed as-built contract drawings.

c) The return of the approved marked as-built prints.

They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any translations or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CADD system. All paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit as-built drawing files and marked prints as required herein shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

PART 2 PRODUCT
NOT APPLICABLE

PART 3 EXECUTION
NOT APPLICABLE

-- End of Section --